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FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

Vol. 87, No. 1 JANUARY, 1934 Member A.B.C. — A.B.P.

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By FRED SHEPPERD

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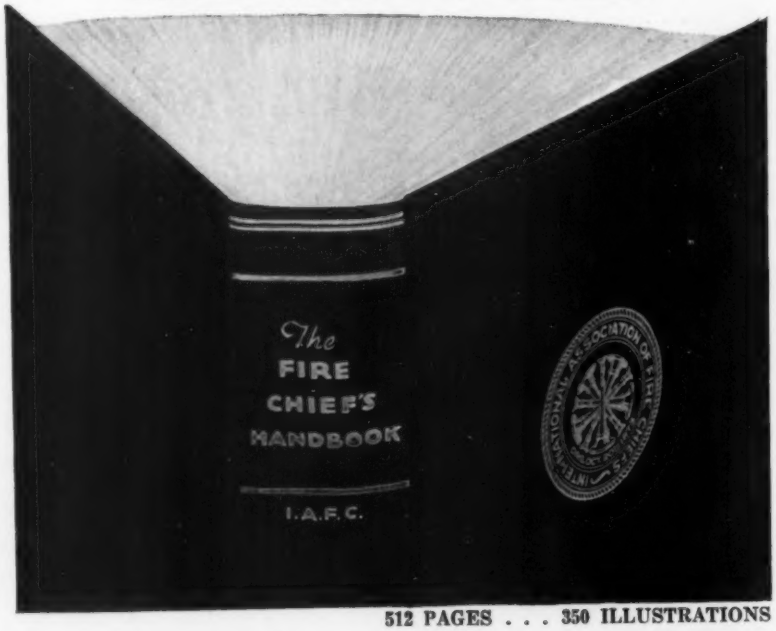

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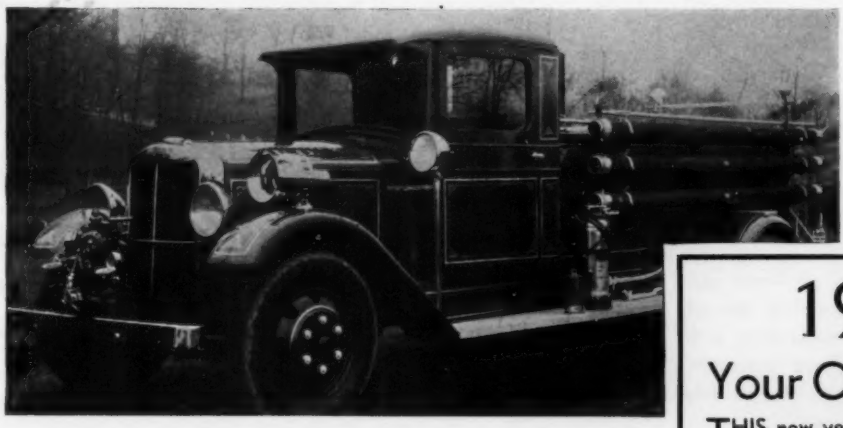

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The Journal of the Fire Protection Profession Since 1877

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The Publishers

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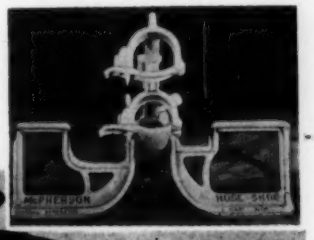

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Chief of Department.

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The instant alarm given by your Sprinkler Watchman connection enabled us to reach the school within a minute after the water flow started and to shut off the water before it spread around the auditorium. Only a small loss resulted, but had the water flow continued any longer, there would have been much greater damage.

This incident was a practical demonstration of the value of your Sprinkler Watchman in keeping down water loss. I have repeatedly recommended this protection for public and other buildings.

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FIRE ENGINEERING

The Journal of the Fire Protection Profession

Volume 87 JANUARY, 1934 Number 1

With the Editor

New York Steps Ahead In a move to increase Fire Department efficiency and eliminate administrative costs, Honorable F. H. LaGuardia, New York City's new mayor, has introduced an innovation which should prove highly successful. He has named Fire Chief John McElligott as Fire Commissioner and is to introduce in the Board of Aldermen legislation necessary to make the new Commissioner the executive as well as operating head of the Department. In other words, Chief McElligott will hold the jobs of Fire Chief and Fire Commissioner, which will be amalgamated into one.

Several advantages of this arrangement are apparent. The Chief will have supreme command of, as well as sole responsibility for, the department. Better discipline should result, for there will be no countermanding or nullification of orders by political superiors. There will be no interference on the part of politically appointed superiors who know not even the rudiments of the work of the department.

Vesting supreme authority in the Chief of the Department should improve the efficiency of the force markedly, for he will be in a position to inaugurate such changes and improvements as his experience dictates. He will feel free to formulate and follow a program for the betterment of the service, with the knowledge that he alone will be responsible for results.

In order that the Chief may not be both complainant and prosecutor where members of the department are brought up on charges, he has been provided with a civilian deputy commisioner, appointed by the Mayor.

That the new set-up will succeed is very likely, for Chief McElligott has proved himself to be a very competent officer. He has won the respect both of the men in the department and his superiors in the city service, and should expect the best of cooperation.

While New York City is not the first large municipality to combine the duties of Commissioner and Chief into one office (Buffalo, N. Y., having adopted this plan several years back) nevertheless cities throughout the country will follow closely the results of this experiment in the nation's largest city, and if it succeeds in New York other municipalities will surely follow suit.

Fred Sheppard

What Has Been Accomplished in

Standardization of Hose Threads

By JAY W. STEVENS,
State Fire Marshal,
San Francisco, California

Jay W. Stevens

THE first convention of the Pacific Coast Association of Fire Chiefs which I attended was at Portland, Ore., in 1905, where the subject of hose thread standardization was a live issue, undoubtedly because of the Baltimore conflagration of 1904, and I believe that the subject has been rehashed and resolutions passed at practically every meeting from that time up until the year 1929. Undoubtedly similar discussions were taking place in Fire Chiefs' conventions throughout the whole of America, in a few instances resulting in definite action toward standardization.

However, nothing was accomplished in the Pacific Coast territory until 1929, when a small group of California Fire Chiefs decided that it was time that something be done besides talking, and as a result of their efforts, the 1931 session of the Legislature passed a law requiring that within a five-year period, all fire hose threads and couplings be made to comply with the National (American) Standard.

During this same period of time, the work was undertaken in Oregon by the State Fire Marshal's Department, and in Washington by the Washington Surveying & Rating Bureau, which work has since been completed in both these states. As a result of the action of the California Legislature, the work was started late in 1931 and it appears now will be practically completed by the first of the year 1934.

Need for Standardization in California

The need for standardization work in the state of California was illustrated by several conflagrations, and near conflagrations, in the 1920's, the principal fire being one which swept Berkeley, taking nearly six hundred buildings, with a loss of ten million dollars. Fire equipment responded from Oakland, San Francisco, and other nearby cities, but was unable to render aid because of the lack of standardized hose threads, this being a repetition of the story of the national problem. Incidentally on the same day, San Francisco had dispatched equipment thirty miles in the opposite direction, where another conflagration threatened, and was confronted with a similar condition.

In another case, that of two cities of similar size, located thirty-two miles apart, and connected by a fine, paved highway, namely Redding and Red Bluff, the latter was forced to call upon the former for help, and while the Redding Fire Department made a record run, they found upon arrival that they could give aid only by strapping the suctions to the hydrants, and this after much delay.

We found during our work in California that one railway system in the west had twenty-seven different types of fire equipment threads, and in one of our prominent western cities, there were nine different threads.

"Roxbury" Thread Adopted Through Big Boston Fire

The first widespread recognition of the serious handicap in combatting large fires due to misfits in fire hose threads, took place as a result of the confusion experienced in the great Boston fire of 1872. This recognition soon resulted in the general adoption in that section of the country of the so-called Roxbury thread, having the same outside diameter, and but a slightly coarser pitch than the subsequently adopted National Standard.

In the next decade or two the feeling of added security in the use of interchangeable threads was made apparent in several other widely separated sections of the country. In and around New York City a thread of diameter and pitch much smaller and finer than the Roxbury was pretty generally introduced; cities and towns of the extreme west, following the precedent set by San Francisco, adopted what came to be known as the Pacific Coast Standard, with the same pitch but of smaller diameter than the National Standard. Some large and many smaller cities provided themselves with a very coarse 6-thread pitch, reasoning that it was less subject to injury through rough usage and required fewer turns in connecting up. Ambitious manufacturers and salesmanship induced many municipalities, including Philadelphia and other large cities, to provide themselves with some of the various types of very quick though less reliable snap or clutch couplings.

Motor Apparatus Increases Tendency to Standardize

As years went on these local, though widely different standards, spread over considerable areas, then more or less segregated. When distances were great and horses were the principal means of getting from one place to another, outside aid was not so great a factor in fighting fires, but as the country became more thickly settled, cities and towns developed and spread, populated areas grew together, and more modern means of transportation were provided such as railroad flat cars and motor trucks, thereby providing quick means of getting the fire apparatus and men from neighboring municipalities to come to the assistance of a community being devastated by fire, outside aid became an increasingly important factor in effectively combatting the spread of large fires.

Not only in the big Boston fire, but in the Baltimore conflagration of 1904, that of Augusta in 1916 and a number of other disastrous fires occurring at fairly fre-

quent intervals did outside aid prove of little or no avail, resulting in appalling losses due in a large measure to non-interchangeable fire hose threads.

So that while uniformity has in a measure been recognized as essential to reasonable security over a long period of years, it is only within comparatively recent years that definite and lasting progress has been made towards country-wide standardization.

I. A. F. C. Makes First Effort Toward Standard Thread

The first organized effort towards the adoption of a universal standard thread was made by International Association of Fire Engineers during their ten annual conventions ending in 1883. This organization advocated and adopted during this period several widely different threads, and it was not until a Committee on Hose Couplings and Hydrant Fittings of the National Fire Protection Association was appointed in 1905, that the placing of this movement on a permanent foundation was commenced.

Through the continued efforts of this committee, the National Standard thread promptly received the unqualified approval and adoption by all the leading organizations concerned with water supplies, Fire Departments and fire protection. This committee then carried on an educational campaign, through convention addresses, the publication and distribution of thread specifications with suggestions for conversion and printed records of existing threads. By 1915 but slightly more than 100 cities and towns had through adoption, replacement or conversion provided themselves with standard threads, which total was only about one per cent. of the total protected municipalities in the United States and Canada.

National Board Takes Over Standardization Work

It was evident that the desired progress in the actual work of standardization in the field was not being made. In July, 1917, the work of this N.F.P.A. Committee was through mutual agreement taken over by the Committee on Fire Prevention and Engineering Standards of the National Board of Fire Underwriters. The intervention of the World War deferred active consideration by this latter organization until the spring of 1919.

To ensure effective field results in standardizing existing threads, it was decided that specially designed rethreading tools were of first importance. It was mainly through the valued cooperation of the Greenfield Tap and Die Corporation, of Greenfield, Mass., that complete sets of conversion tools were made up, tried out and finally perfected.

File records of existing threads indicated that nearly three-fourths of all existing fittings in the country could at a negligible cost, be made standard through suitable supervision and the use of these tools.

Movement Gains Momentum

During the summer of 1919 non-standard threads on hose couplings, hydrant nipples and caps, playpipes and other special fittings and connections to fire apparatus and equipment were resized and left in exact conformity with the National Standard in five of the smaller municipalities in New Jersey, Pennsylvania, and Indiana. The results obtained in these communities showed conclusively that the necessary field work over practically the entire country was not only feasible and very inexpensive, but of great public benefit.

Henceforth the doctrine spread rapidly, so that organized movements for state-wide standardization were started. Michigan and New Jersey in 1920 were first to get under way; Indiana, Minnesota, Ohio and Rhode Island followed in 1921. Thus once started, the movement itself gained momentum; insurance rating and inspection bureaus, State Fire Marshals, water works and Fire Chiefs' organizations not only became interested but active.

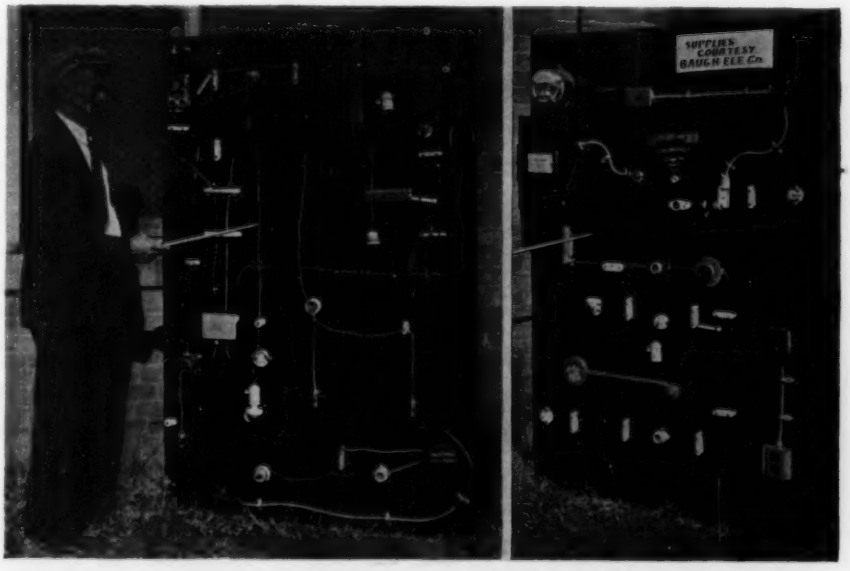
Ideal Interchangeability Insured

Aside from the additional protection which uniformity in fire hose threads affords all municipalities in the event of large spreading fires calling for outside help, an appreciable advantage to be derived from the introduction and use of National Standard is the fact that it is the only thread for which limiting dimensions have been definitely fixed and thus insures ideal interchangeability.

These limiting dimensions, an amplification and in perfect harmony with the characteristic dimensions originally adopted, were first established by the National Screw Thead Commission, promulgated by the Department of Commerce, and created by Act of Congress in 1918. The long and continued interest of the American Society of Mechanical Engineers in the manufacturing phase of standardization resulted in the establishment of definite thread tolerances for the finished product, and of test gages, which were approved by the American Engineering Standards Association.

Progress of the Work

Since the spring of 1920, this movement has spread until at the end of 1932 a total of 4,700 cities and towns



The Wrong and Right Ways to Install Electric Wiring

Clarence King, a member of the Hopkinsville, Ky., Fire Department, of which Joseph East is Chief, demonstrating incorrect and dangerous installations on the left hand board and the proper way that such work should be installed on the right, in a Fire Prevention Week display in that city.

in forty-one of the forty-eight states have through conversion had their fittings made standard. In nine of the states the work of standardization along state-wide lines has been completed, in fourteen it is nearly completed, and in twelve others, it is under effective headway. In addition to California and Oregon, Massachusetts, South Carolina and Texas have, through legislative act, made standardization compulsory.

Due to initiative on the part of one of our main line railroads, there are three states in each of which two or three cities were made standard by the railroad interests.

Expense Involved is Slight

Very comprehensive cost data submitted by the South-Eastern Underwriters' Association, which is the supervisory organization carrying on this work in the south-eastern states, is evidence that the expense involved is so slight as compared with the materially improved fire protection facilities, as to fully justify continuing the movement until the one standard interchangeable thread is in use throughout the country. During the two years ending in March, 1933, the South-Eastern Underwriters' Association standardized a total of 186 protected cities and towns in Georgia, Alabama and Florida, and at a total cost, including salary and expenses of supervising engineer, maintenance of auto truck and the purchase and upkeep of tools, of $9,166, or an average of slightly less than $50 per municipality. For the calendar year 1932, a total of 55,164 threaded parts were converted to standard at a total supervisory cost of $4,227, or an average cost per fitting of about three-fourths of a cent. No allowance is made for any costs of labor and materials used in applying the tools, as each community in nearly all cases, furnished the necessary labor and materials at little or no additional expense, from their regular employees and ordinary supplies at hand.

Real Problem in Certain Cities

In most cases, this problem of standardization is greatly exaggerated in the minds of the city officials, at least, we found it so. I am not unmindful of the fact, however, that in certain cities it is a real problem.

While generally speaking, the states in the west used what was known as the Pacific Coast Standard, there was a wide variation in the size of such threads, in some cases as much as 3-32 of an inch. This caused much confustion, and frequently it was necessary to return the hose to the factory, as it was impossible to connect up. Because of this confustion, in a great many cases, the manufacturer would ask for a sample coupling before the hose was shipped. For years it was customary for Chiefs receiving such requests to cut a coupling from their hose in case one was not available and forward it.

Work Accomplished on Pacific Coast

The only expense involved in our work in California was for tools and supervisory man power. Except for the replacement of an occasional defective coupling or hydrant nipple, the cost was borne by the State Fire Marshal's Department, and, weighing the benefits as against the expense, the cost was trivial. Our biggest job in California was the standardization of Los Angeles County, with its area of 4,115 square miles, and its 102 municipalities. However, due to the wholehearted cooperation of Chief Ralph Scott of Los Angeles, an enthusiastic member of the I. A. F. C., and a former President, more than half a million feet of hose in Los Angeles city were standardized in less than ten days' time. This involved cutting of threads on 12,750 lengths or 121 miles of hose.

The Pacific Coast District of the International Association of Fire Chiefs, has as an objective the completion of this important work in its territory within the next five years. With Oregon and Washington completed, Montana, Idaho and California practically completed, and with the work started in Arizona we feel that we are well on the road to success.

Opportunity for the I. A. F. C.

During this period of unemployment, with many mechanics being anxious to work, and in some cases now receiving city aid, this would seem an appropriate time for the International Association of Fire Chiefs to consider the advisability of undertaking a vigorous drive to complete this important work. The work must eventually be done, and the longer it is delayed, the more extensive and more costly it will be, to say nothing of the serious conflagrations that may result.

Certainly with the progress made by the various organizations interested, and the strength of this organization, together with its subsidiary bodies, this work should be completed in a comparatively short time, and I trust that such will be the case.

(From a paper read before the annual convention of the International Association of Fire Chiefs August, 1933.)

Constructing Fire Apparatus Models Proves Enjoyable Hobby

Although not a member of a Fire Department, Harvey H. Larrabee of Jackson, Mich., has found an enjoyable hobby in constructing fire apparatus models. He hopes to construct models of the sixteen types of apparatus common in this country. He has a work shop in the cellar where he works on the models in his spare time. Mr. Larrabee is shown with four of his models.

A New Use for Relief-Paid Workers

A survey of fire hazards in the home was conducted at Greensboro, N. C., by men paid with federal relief funds. About twelve former insurance inspectors, contractors and salesmen out of work were given a week's instruction to familiarize them with the building code, fire laws and the zoning ordinances. Proper publicity opened the way for these men who were termed "fire hazard counsellors."

This group of inspectors went into every residence in the city and pointed out existing fire hazards. They advised that the hazards should be corrected as they might cause loss of property or life. They asked the home-owners if they would like to consult with somebody qualified to reduced the hazards discovered. Where the answer was in the affirmative, the prospects were classified and the names sent out in bulletin form to all authentic contractors, builders and supply dealers so that their representatives could call.

This campaign provided 44,000 man-hours of work for the unemployed and eliminated many hazards such as faulty electric wiring and shingle roofs.

Fire Service Under the New Deal

By R. E. VERNOR,
Manager, Fire Prevention Department,
Western Actuarial Bureau, Chicago, Ill.

BROADLY speaking, the "New Deal" started off in considerable trouble. Almost immediately all of the banks in the country were closed. Business was at a standstill. International affairs were in a muddle, and it would be hard to picture a more chaotic condition generally.

At the offset of the "New Deal" the fire service also found itself to be in considerable trouble. Economy programs had resulted in personnel reductions. Equipment was not being maintained in first class condition in many instances, and very few replacements were in evidence. Morale was at a very low ebb. As a result of all this, the fire service found itself charged with increasing responsibilities and a greater demand for efficiency in operations in order to offset the unfortunate situations which I have just outlined. This difficulty, of course, was not entirely confined to those connected with the fire service, for almost every type of American business has had to cope with similar situations.

Facing all of these discouragements, there are two attitudes of mind which may be taken. The pessimist can sit in the corner, view the passing show of misery, hold his head and bemoan the great calamity. The other attitude of mind, however, views the turmoil as an opportunity and a challenge demanding the very best which man can produce.

Lesson From Others' Experience

Sometimes we can take a lesson from the other fellow's experience, and I invite your attention to a situation in Chicago. Can you imagine the state of mind of those stalwart executives of the Chicago Century of Progress Exposition at the time they discovered every bank in the country was closed? What a splendid example of courage these men exhibited! They refused to believe that the depression was to be with us constantly and forever, and so with determination they proceeded with all of their elaborate plans in order that the great exposition could be opened on time—as it was. That is the spirit which should characterize our Fire Departments in 1934. We may, for the time being in many instances, be under-equipped or under-manned and the budget may be reduced to an alarming degree, but I think there is no doubt in your mind but that the situation must be met with increased efficiency and devotion to our duty, never losing sight of the fact that human life as well as property are at stake.

Fire Department in the New Deal

The Fire Department in the "New Deal" must be prepared for almost any emergency. I have frequently told audiences that sometimes I think the fire service is misnamed. The organizations which you men represent could be more properly called "Public Service Emergency Department," for I know you are frequently called upon to perform many activities which have little or nothing to do with the actual extinguishment of fire. If the facts in such cases could be understood by the people of your respective communities, I am sure there would result a much greater appreciation of the real value of the fire service throughout this land.

The Illinois Fire College

Nine years ago the State Fire College of Illinois made its first appearance—both at the University of Illinois and the Iowa State College at Ames. These schools have provided a scientific and technical background for all phases of modern Fire Department service, and have expanded now to over thirty states. Last year some 9,000 firemen attended these Short Courses and great improvement in fire department technique has resulted. Many fires are being prevented and in innumerable instances those which have occurred have been extinguished promptly and efficiently with a minimum of damage. To illustrate how concentrated some of the work of these schools has become, this year at the Illinois Course one group will spend an entire day on fire prevention inspection, including buildings equipped with automatic sprinklers, and will actually make an inspection tour. The second group will spend the entire day in an intensive study of hydraulics and pumpers.

Within the last two or three years we find supplemental to the State Fire College a number of Regional Short Courses springing up. One of these was held in St. Joseph, Mo., with an attendance of over 390 firemen. These Regional Schools are not only strengthening the attendance at the State Fire College, but afford a large number of firemen in the areas in which the Regional Schools are held to take advantage of this modern training than would otherwise be the case.

It has been my good fortune for the past several years to preside as Chairman of the Annual Fire Department Instructors' Conference held in St. Louis in January and attended by instructors from a number of middle western states. I assure you that the interchange of ideas there and the class of men who participate will be valuable assets to the growing movement of fire department training.

May I again emphasize to be prepared for any emergency requires pretty constant study and training whether it be with the matter of actual extinguishment, the handling of the apparatus, ventilation, hydraulics, salvage, first-aid and life saving, or in fire prevention activities.

Ever since the burning of Sodom and Gomorrah nearly 4,000 years ago, civilization has been fighting an effect instead of a cause. The up-to-date Fire Department has at last concentrated in no small degree upon the cause. In other words, many fires can be prevented. Two of the best weapons for producing such results are inspections and education.

Importance of Inspections

The Fire Department inspection is of extreme importance to the modern fire service. It not only furnishes an educational medium for reaching the public; but it also keeps the Fire Department itself thoroughly familiar with exact conditions and hazards and makes it possible for the firemen to have a reliable battle map in event that fire occurs.

Education of the public which you men serve is of paramount importance. There are times when equipment, man-power and scientific learning are of little use. A few weeks ago I stood in the still dripping ashes of a small two-room cottage in Rapid City, S. D., where just a few hours before a father, mother and four small children were burned to death because the father threw

kerosene on some hot coals in the stove in the morning before the family was up. Neighbors called the Fire Department promptly, but you see it was too late. There is no other answer to a problem of this character except a continuous educational program teaching people the essentials of fire safety.

In most communities the Fire Department will find public spirited citizens and organizations willing to co-operate in such an educational program. In fact, it is a mistake for the Fire Department to attempt to handle such a program alone unless it is impossible to secure co-operation. The splendid record of some 400 American communities in which there are all-year-round Fire Prevention Committees in Chambers of Commerce, in most of which the Fire Department plays a prominent part, is evidence enough of the value of such team work. The average per capita loss in these cities in 1922 was $3.24. In 1932 it was $1.88. I strongly recommend to those of you who are not co-operating in this movement to think of it as a real opportunity for the fire service in the "New Deal," and to make certain that your community has a well-rounded continuous fire prevention program.

The Problem of Public Relations

May I suggest one other thought—every business these days is confronted with a public relations problem. In simpler language, we all need friends who understand us, and the Fire Department is no exception. If you find yourselves under-equipped, under-manned, with the public out of sympathy with your plans and problems, then it is high time you directed a definite program of "selling" your service to the people of your community. First, you must absolutely merit public confidence. This means that the best possible use must be made of the equipment and man-power available; that the apparatus be kept spic and span, and that an atmosphere of discipline and efficiency be suggested by the very appearance of your equipment, so that when a citizen comes into the Fire Station he will be received courteously, and that he will leave holding his head a little higher and feel actually proud of his own Fire Department.

Your fire prevention and inspection work will go a long way toward promoting a better understanding on the part of the public. I am sure that most of you can easily secure the co-operation of the newspapers of your city. You will find a Regional Fire School held in your town of great value in focusing public attention upon your own Fire Department, in addition to its many other advantages. Perhaps one of the best means of promoting public relations is one which has been used successfully in many communities, namely, that at least once a year you stage a public demonstration covering the wide scope of your various activities. You will find a ready response on the part of the public if you will invite them to an evening's "Fire Show" staged at your headquarters or at the drill tower. Take advantage of whatever showmanship you can in arranging the program. Use flood lights if possible and you will find a loud speaker over which the various evolutions are explained to the audience will be a great asset. If the thing is well done, your towns people will go home with a new understanding of the services performed by their own Fire Department, and it is eminently worth the effort.

The Fire Department in the "New Deal" marches straight on, surmounting its difficulties and temporary set-backs, and looks forward to the day when it will enjoy that public appreciation which it so frequently merits.

(Excerpts from a paper read before the annual convention of the Ohio Fire Chiefs' Association.)

I. A. F. C. DIRECTORS TO MEET JANUARY 17

The annual meeting of the Board of Directors of the International Association of Fire Chiefs will be held at the Hotel Edison, New York City, on January 17. At that time the convention city for this year's meeting will be selected, and details of the program will be worked out.

I. A. F. C. PRESIDENT URGES BETTER PROTECTION IN PUBLIC INSTITUTIONS

Cooperation of State Governors Asked to Better Protection of Life and Property in Hospitals, Schools, and Other Public Institutions

ONE of the first moves instituted by Selden R. Allen, new President of the International Association of Fire Chiefs, was the transmission of a letter to all State Governors urging them to utilize the Public Works Administration funds for the removal of fire and life hazards from public institutions and for the bettering of fire and life protection in these establishments. The letter was dispatched shortly after President Allen returned from the Convention in September, and to date practically all Governors have indicated their interest in the matter, and many have already instituted work on programs to accomplish the desired end.

Chief Selden R. Allen
President, I. A. F. C.

That the various Governors have taken the matter seriously is indicated by the great number of requests which have come from state institution for more specific data on how they might be able to secure and apply Federal Loans for fire protection improvements. Many such institutions have already initiated programs which will aid materially in reducing the hazard to life and property.

It is President Allen's intention to interest architects on a nation-wide scale in the subject of fire protection so that proper consideration may be given to this particular phase of building construction and equipment in the design of new buildings to be erected in the future.

New Jersey Signal Association Meets

Several talks and demonstrations formed the program for the monthly meeting of the New Jersey Municipal Signal Association at Bayonne, N. J. E. W. Davis, of the Simplex Wire and Cable Company, spoke on the new wire and cable for telegraph messages. W. M. Runyon, Crouse Hinds Corporation, described and exhibited explosion proof fittings. Frank Gunther, of the Radio Engineering Laboratories, spoke on and demonstrated ultra high frequency. Lieut. Doyle, in charge of Bayonne police radio, spoke of the service rendered by radio in his city and he demonstrated the communication of cars with each other and with police headquarters. Mr. Stratz, of the Home Light Electric Generator Company, demonstrated floodlighting at fires. He used Rescue Squad No. 1, of the Bayonne Fire Department.

The next meeting of the association will be held at Ridgewood, N. J., January 18.

Dallas Improves Its Fire Forces

By CHIEF ROD. GAMBRELL,
Fire Department,
Dallas, Tex.

Chief Rod Gambrell

IN alluding to the subject of improvements in the Dallas Fire Department, it becomes necessary to refer to changes that have proved themselves efficacious for the purpose intended, that is, to prevent fires and reduce fire losses. These changes I shall list under several headings.

1. The Bureau of Fire Prevention is composed of the Fire Marshal and staff, who were appointive previous to the change of government in 1931 and were transferred to the Fire Department and placed directly under the supervision of the Chief of the Department. The Fire Marshal now ranks as an Assistant Chief. He is a practiced fireman, and all members of the staff are likewise. This office has an Arson Squad, and is assisted by one of the Assistant District Attorneys, who has been assigned full time duty with the Fire Department. Inquests are held on all suspicious fires, and all evidence presented to the Grand Jury. In many cases indictment and prosecution follow.

A Captain is in charge of all inspection work and handling of complaints. Prosecution in court follows in flagrant violations. An officer from the Fire Marshal's office is on permanent assignment to inspect extra hazardous places such as: hotels, rooming houses, film exchanges, theatres, etc. Another member of the Fire Marshal's office is assigned permanently to the handling of minor complaints.

Continuous Inspection of the Business District

Continuous inspection of the business district is carried on by a number of On Duty Officers (Captains and Lieutenants). In the semi-business districts, outside the high value districts, one inspection is completed each fifteen days by off duty members of the Fire Department. These inspections have two purposes: To familiarize the members of the department with these buildings and the removing of fire hazards. Once a year the members of the Department make a complete inspection of the entire residential section for the purpose of educating the public in fire prevention, and pointing out the many fire hazards around the home. These men work in pairs in making this inspection. Great publicity is given in the papers, notifying the public that this inspection is not compulsory, but will only be made with the house-holder's permission. The public has cooperated with the department to the fullest extent, has seemed very desirous of this service, and has shown due appreciation for the work. Last year when this inspection was completed there were 86,000 reports made with 7,200 hazards found and corrected. During this inspection there were distributed some 40,000 pamphlets ("Fire Prevention in Dallas") to the home owners.

Alarm System Transferred to Fire Department

2. The Superintendent of the Alarm System and the members of his department were also transferred to the Fire Department, and placed under the direct supervision of the Chief. A number of improvements have been carried out to make this department come up to standard. This department controls the traffic signal lights, which is an aid to the Fire Department, as the traffic lights are controlled from the Fire Alarm Office. This gives greater safety and more speed to the department in responding to alarms.

3. Changing from solid to pneumatic tires on all pumpers and service trucks has increased their efficiency, speed and safety, as well as to reduce the maintenance cost.

Evolutions and Setting Up Exercises

4. A six story drill tower has been added, where two or three companies perform standard evolutions during the morning and afternoon periods.

5. All members of the Department are required to take fifteen minutes setting up exercises each morning, which tends to keep the men in good physical condition.

Civil Service Board Created

6. When the Manager form of government was inaugurated a Civil Service Board was created, which drew up rules and regulations governing the same and assuring members of the departments of job safety and freedom from political influence. This has been the cause of greatly increasing the morale of the entire Department.

Salvage Operations and Reduction of Water Damage

7. Some changes effected to reduce the water damage are the use of hand pumps, Mast-R adapters, booster tank installations and 1½-inch hose as leader lines off 2½-inch hose, using ¾-inch tip on shut-off nozzles for fire extinguishment purposes, as well as overhauling.

Then the use of 2½ and 3-inch lines for large bodies of fire are deemed essential in single and siamesed lines.

Complete salvage operations are carried out by one fully equipped and fully manned Salvage Company, also by members of Hook and Ladder Companies.

The Department School

8. Another improvement of great importance is the school work. This school is carried on at Headquarters five days each week for all men, a morning and afternoon class of two hour periods. There are sufficient number of teachers and substitute teachers to take care of all members of the department once a week. All officers of the Department have had a full course in teacher training to fit them for teaching the vocational method.

The courses are taught in three separate divisions: Special, Standard and General. Special division is for special classes and on special courses. Standard instructions are given at Headquarters school by teachers prepared for this work. General lessons are taught at the stations by the officers in charge. Company schools are carried on at the stations three to five days a week on both shifts.

Night Patrol in High Value District

9. Last, but perhaps the most important was the establishment of a Night Patrol in the high value district for the purpose of discovering fires in their incipiency. This Patrol is composed of on duty uniformed firemen. One fireman from each company is assigned to each District, the entire business section being divided into districts. The Patrol is divided into two divisions, one for the first part of the night 9:00 p. m. to 1:00 a. m. and one for the last part of the night 1:00 a. m. to 5:00 a. m. These men report at headquarters at the appointed time, where they are assigned a district, furnished a flashlight and police box key, and given any special orders. A Captain supervises each division and visits all districts on his tour of duty.

These men walk continuously and are ever on the alert for fire. They cover every street, alley and court in their district. Should the odor of smoke be discovered at anytime, these men are like bloodhounds on a trail; they begin to trail the odor or smoke, and when it becomes so strong as to convince them of a fire in the vicinity they phone Headquarters and a company is dispatched to this location to help hunt the fire until found. These men call Headquarters and report each hour over police boxes. They also call Police Headquarters and report to them anything where their presence is needed, being of great assistance to that department also.

The supervising Captain makes a complete report of occurrences of importance during his tour of duty. The second

division relieves the first division at 1:00 a. m., and the relieved men report to their companies for fire duty. No man is permitted to leave his district without relief or permission of supervising Captain.

Patrol Men Immediately Available

All of these men are immediately available, and in case of additional alarm fires in the high value district they report to the officer in charge.

Since the inception of this Patrol these men have discovered numerous fires that were controlled and extinguished before they could cause great damage.

One case occurred where one of our patrolmen discovered three men at the door of an establishment, and upon discovering his approach they fled and escaped in an auto which was parked at the curb. When the patrolman got there he found a can of gasoline and a jimmy at the door. This probably prevented a serious incendiary fire. The moral effect has been very noticeable since the establishment of this Patrol. I believe that the establishment of this Patrol in our department has been one of the most important forward movements to prevent fires.

These are some of the major improvements that have reduced fire losses and prevented fires in Dallas.

(From a paper read before the annual convention of the International Association of Fire Chiefs.)

THE ORIGIN AND DEVELOPMENT OF THE MODERN AUTOMATIC SPRINKLER

While in Use Only About Fifty Years, First One Was Invented in 1723—Interesting Developments to Present Day

By G. B. Muldaur

General Agent, National Board of Fire Underwriters

AUTOMATIC sprinklers, although in general use for only about fifty years, date back to 1723. In that year a patent was granted to an English chemist, Ambrose Godfrey. It consisted of a cask of chemical fire extinguishing fluid in which was placed a pewter receptacle containing gun-powder. The powder was exploded by means of a fuse which was lighted by an incipient fire and the explosion scattered the liquid about the premises, and, perhaps, put out the fire.

First Sprinkler Invented in 1806

The first sprinkler using a system of pipes supplied with water from an elevated tank was invented by John Carey in 1806. The water was held in check by a valve in the main pipe held in a closed position by a weight. The device was operated by a system of cords, which, when burned, released a counter-weight, opening the valve and admitting the water to perforated pipes along the ceiling.

Systems involving the use of fusible wires came to light about 1855. The first patent on an automatic sprinkler issued in this country was granted to Philip U. Pratt, of Abington, Mass., in 1872. This also utilized metal fuses with a low melting point to operate cords which in turn opened the valve. Two years later Henry S. Parmelee of New Haven, Conn., took out a patent on a sprinkler which was the forerunner of the modern systems. This was actually used, principally in New England mills, until 1881, when it had been installed in 214 buildings and is said to have operated successfully in extinguishing nineteen fires.

The diaphragm-type sprinkler, somewhat like those in present use, was invented by Frederick Grinnell in 1882. Improvements upon the first type were brought out in succeeding years and the 1903 type is still being extensively used.

Winners of Contest Given Ride on Apparatus

Examinations on fire prevention were given in schools in Livingston, Mont., during Fire Prevention Week. The first twenty winners in the public school and in the parochial school received a free ticket to a theatre and the next twenty each received a ride on one of the city's fire apparatus. Above is the group from the parochial school.

Early Types of Sprinklers

During the period from 1875 to 1885 many sprinklers of different types made their appearance, chiefly in the experimental state. The International sprinkler, made and installed by the International Sprinkler Company, came out in 1900; the Manufacturers sprinkler, made and installed by the Manufacturers Automatic Sprinkler Company (later the Automatic Sprinkler Corporation of America), in 1892; and the Meracher, of which there have been seven varieties, dates from 1884 to 1903. The Neracher "Improved" sprinkler is still being manufactured and installed by the Grinnell Company. The Rockwood sprinkler first appeared in 1905, although it was not until about 1907 that extensive use of the sprinkler began. The Esty sprinkler was first listed in 1915, although several earlier types of this sprinkler were made and marketed. The Globe sprinkler, made by the Globe Automatic Sprinkler Company, was first listed in 1913.

It is only natural that many early types proved unsatisfactory. Underwriters' Laboratories records show that as late as 1904 only four had been admitted to their list of inspected fire protection appliances. From then to 1910 only two or three new types were added. The names of sixteen sprinkler manufacturers now appear in the Laboratories list, covering about thirty types for "ordinary" service, as well as a number of special ornamental design or having protective coating for use in corrosive atmospheres.

Present practice recognizes in general four temperature ratings (points at which the fusible element is designed to operate) 165, 212, 286 and 360 degrees Fahrenheit, and known as ordinary, intermediate, hard and extra hard, their use being determined by normal temperatures at the ceiling in accordance with the Regulations of the National Board of Fire Underwriters.

Laboratories' Tests Leave Nothing to Chance

The Laboratories' standard tests of sprinklers leave nothing to chance and little to the imagination. The equipment in use includes:

(a) A testing machine used in the investigation of the strength of the various parts of which the sprinkler is made up.
(b) Hydrostatic pressure test apparatus used for leakage, steady pressures, and water-hammer tests.
(c) Hot air ovens in which operation tests are made with the sprinklers in their normal condition; with sprinklers in which the normal stress on the parts has been greatly reduced; and others in which the stress has been greatly increased over the normal.
(d) Bath test apparatus with which the fusing temperature of the soldered link or strut of the sprinkler and the promptness of operation are ascertained.
(e) Service test apparatus, with which the sprinklers can be tested under normal operating conditions under various service pressures and the distribution of the sprinkler observed.
(f) Corrosion test apparatus used to corrode sprinklers to represent their condition after a considerable period in service under unfavorable field conditions, the sprinklers being subjected to oven tests after being corroded.
(g) Rough usage test apparatus, by means of which sprinklers are subjected to rough usage, such as that to which they may be subjected in the field, the object of the test work being to ascertain whether a sprinkler will withstand abuse.
(h) Precision measuring apparatus, used in investigating leverages and off-center distances.

Possible deterioration with age is also tested. Strings of sprinkler links, heavily weighted, have been hanging in the laboratory for the past twenty years or more. If one breaks in the course of time the causes of the break are studied and noted.

Heads from existing installations are sent to the Laboratories by inspectors in the field and are retested to determine their resistance to severe service conditions.

The Laboratories' collection of old and new types showing the growth of the industry from early days to the present time, what may happen to sprinklers in use, and what should be guarded against to prevent trouble, is in itself a most useful contribution to the sprinkler industry.

THE ROUND TABLE

For Practical Discussion of Current Fire Department and Fire Management Problems

KNIFE SWITCHES FOR THE PROTECTION OF AUTOMOBILES

MANY fires develop in automobiles while the cars are in storage, and in a large number of cases, the trouble is due to defective electrical ignition.

One way to reduce the number of fires of this nature is to cut off the wiring system from its source of power, in other words to open the electrical circuit. This can be done by installing a knife switch at a convenient point, and then opening the switch when it is desired to cut off the circuit. A knife switch is a cheap fire protection device, but before installations of this character can do much good, it will be necessary to win over the public and the manufacturers of automobiles, to the merits of the plan.

Not all chiefs believe this plan will work. There are some who doubt the value of such an installation.

In the box on this page is the question in full that is treated in this issue. In the box on the following page is the problem that will be discussed in the next issue. Should you have some comments that you would like to add to the next discussion, you are invited to write to the "Round Table Editor," FIRE ENGINEERING, 24 W. 40th Street, New York, N. Y.

Discussion of the Question

John G. Ford, Chief, Trenton, N. J.: I have given some thought to the matter of equipping automobiles with knife switches near the battery so that the circuit may be opened when the car is stored and thus reduce the fire hazard. My opinion is that it has its good points and then again it has some bad ones. This proposition may be all right when putting the car up in the garage at night and the knife switches are kept in operation. However, they have their disadvantages, such as the possibility of the knife switches becoming corroded if not kept in operation. Also in running the cars, there is the likelihood of vibration loosening the switches and thereby causing the circuit to be opened when the car is in motion. There are comparatively few fires when cars are stored, most fires being caused from backfiring, or when the car is in motion.

Motorists would take to this plan by the means of reduced fire risk rates and that probably would be the only way to win the public over to this plan.

John J. McElligott, Chief, New York City, N. Y.: I do not believe your suggestion regarding the installing of knife switches near the battery so that the circuit may be opened when the car is stored, is sound from an economic point for the following reasons:

1. The additional expense placed upon the owner of an automobile in installing knife switches.

2. When cars are stored for any extended period of time, the efficiency of batteries will be materially lessened, and will even deteriorate to the point of actually ruining same, if not charged, which means replacement by new battery, and for these reasons:

3. Batteries should be removed, cleaned and placed on charger at frequent intervals while vehicle is laid up in order to preserve them and prolong life.

4. The record of fires in dead storage, due to the fact that batteries have been left in vehicles, is practically nil.

I do not believe motorists could be made to endorse the proposition generally for the reasons above stated, and for the same reasons I believe it would be futile to even try to win the general motor vehicle owning public over to the plan.

Thomas J. McCarrick, Chief, Revere, Mass.: While fire frequency in Revere involving automobiles is low, particularly with reference to fires caused due to the ignition system, nevertheless there is no question but what defective ignition is a contributing cause for many automobile fires and in view of that I certainly believe that the suggestion merits full consideration.

I think it would be wise to first refer a proposition of this nature to automotive engineers for study and it might be possible for them, if met with approbation, to so arrange such a switch as will make the car theft-proof as well as reduce the fire hazard.

I am inclined to believe that if such a knife switch was conveniently located and easily accessible, the average motorist would avail himself of the protection afforded. I believe that if such a switch was installed for a specific or two-fold purpose, the motorist would adopt himself to the necessity of operating the same just as he now operates the ignition switch. In addition the motorist could be advised, through publicity, relative to the advantages. In Massachusetts, if such installations were made by all manufacturers, our State Fire Marshal may consider the enactment of a regulation making it mandatory to use all such devices, particularly in public garages.

Luther P. Willis, Chief, Pueblo, Col.: We have had no fires in automobiles while in storage and therefore believe that there is but a slight danger of short circuits from leaving batteries connected while in storage. Therefore there is small need for equipping automobiles with knife switches.

I am of the opinion that motorists would not take to this plan, as it would mean additional expense to install the switch, and little likelihood of a reduction in insurance rates.

If, however, the manufacturers would include the installing of switches on their new productions, it would mean that eventually all cars would be equipped with them, and the public would accept them. Other than that, I do not believe, the car owners could be won over to this plan.

Chas. Otterson, Chief, Napa, Cal.: Eighty-five per cent of fires in cars are caused by battery terminals resting on

HERE IS THE PROBLEM

A suggestion has been made that automobiles be equipped with knife switches near the battery so that the circuit may be opened when the car is stored and thus reduce the fire hazard.

What is your opinion concerning the idea?

Do you believe that motorists could be made to take to the plan?

What procedure would you follow to win the public over to the plan?

the frame and breaking down the arrangement. If a car is properly wired, the fuse will take care of all possible shorts or grounds.

I think, if the proper authorities took up the matter of the automobile manufacturer regarding the installation batteries this trouble could be corrected.

E. S. Mohn, Chief, Jersey Shore, Pa.: In my eight years' term as Fire Chief of this city I have never experienced an auto fire caused by wires while the car was in storage. I presume you mean cars that are stored for more than 24 hours.

In our part of the country, due to very cold winters, when cars are stored for any length of time the batteries are taken out of the cars and placed where it is warmer than the average garage.

It's a hard problem to state just how to convince "Mr. John Public" to use the knife switches even though one were installed.

Really the modern insulation and installation of all electric wires, etc., on our present day cars seems to me to be adequate to take care of the fire hazards of the modern car.

A. E. Cooke, Chief, Pomona, Cal.: Relative to knife switches for automobiles, I am very much in favor of them. Several years ago with the aid of an electrician, I made a crude master switch which operated very successfully, my idea at that time being two-fold: To prevent fire and theft. We used a single knife switch tapped into the battery cable and operated by a foot pedal.

I believe a large percentage of motorists would be in favor of such a device. If this device could be purchased and installed at a reasonable cost, I am sure its adoption by the motoring public and automotive manufacturers would follow.

W. E. Twitty, Chief, Lubbock, Tex.: To reduce the fire hazard to cars when stored, I believe a good plan is to open the battery circuit near the battery, this would also provide a disconnection for working on various parts of the car.

Should switches be adopted it would be a wise move to have the switch so located so that the driver would have no excuse for not opening same on storing car.

To aid in enforcing the use of these switches they should be quoted in insurance policies.

H. S. Blair, Chief, Bellefontaine, Ohio: The suggestion regarding equipping autos with knife switches near the battery to reduce the fire hazard is an excellent one if properly worked out.

Motorists could be made to adopt this new device if made very convenient or automatic.

These devices should be installed at the factory. Home made arrangements dealing with electricity are dangerous.

A. A. Dietrich, Chief, Nanty Glo, Pa.: I would not approve of an open type knife switch on an automobile as it would gather grease and dirt and would be more of a fire hazard than were none at all used.

I believe, however, that any type of closed switch would be very good.

C. T. Copeland, Chief, Troy, Ala.: The suggestion of equipping cars with knife switches for the purpose of reducing fire hazard, if carried out, will undoubtedly reduce fire losses and cannot help but meet the approval of all Underwriters and insurance companies. Every manufacturer should be required to install this on all new cars which would make the present car owners want it on their cars.

Should every automobile, insurance and fire department magazine stress this point, the public will naturally take to it.

J. F. Smith, Chief, So. Pasadena, Cal.: I think that the automobile knife switch is a good idea, but I do not believe the public would use it, unless it was fixed so the switch would throw out automatically when the motor is stopped.

H. J. Callahan, Chief, Fort Dodge, Iowa: The idea of the knife switch for autos is a good one, but I am very doubtful if it can be successfully carried out.

A program of education might be used to gain the point, although it would take some time.

HERE IS THE PROBLEM FOR THE NEXT ISSUE

How much are the firemen of your department paid per month?

How much of the pay is taken out for pension and relief fund?

Does this pay include allowances for uniform or must the men provide their own?

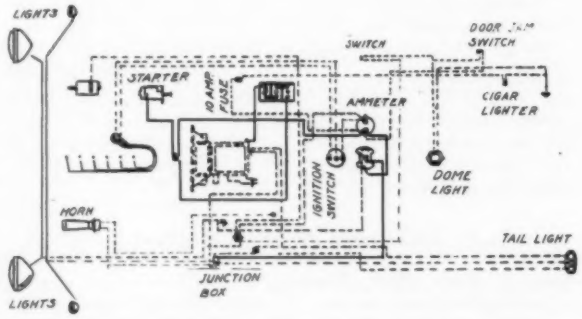
Insurance companies might be of material help by granting a small percentage of reduction on rates for storage buildings where attendants were instructed to open such a switch when storing cars. Such switches would have to be conveniently located so as to be accessible without the necessity of raising the floor boards.

F. J. Ostertag, Chief, Burlington, Iowa: A knife switch near the battery will keep the circuit open while car is not in use and will reduce automobile fires in garages to a large extent.

This switch also will help a fire department when answering a call for an automobile fire where the wiring is shorted as all that is necessary is to pull the switch, instead of removing the battery wire.

Insurance companies should have a clause in their policies recommending its use, and same should be run in local papers calling motorists' attention relative to the switch and asking them to use same whenever storing their car or putting it away for the night. I think this switch should be installed on all new cars at the factory and ones now in use, as the danger of an automobile fire equipped with this switch will be cut to a minimum.

George Haggerty, Chief, Berkeley, Calif.: The drawing herewith will give an idea as to the amount of wiring to be found in the ordinary modern car. Tail lights, dome lights, stop lights, cigar lighters, etc., in addition to the



necessary head lights and the connections for the starter and generator, etc., have rendered the wiring system quite complex.

Some cars are provided with a system of fusing which more or less protects against short circuits, but in many instances this protection is inadequate or lacking entirely. In the latter instance a short circuit in the body of the car would no doubt result in a fire.

A car in storage is a potential hazard as long as the battery is connected, for even though the ignition switch is off, the wires leading to all parts of the car are alive. As an example of what might happen, suppose the door jam switch becomes defective. There would immediately be sparking, and in all probability fire would result unless of course a small amperage fuse is on this circuit. Other trouble might result through some object of combustible nature being pushed accidentally against the cigar lighter.

After considering the possibilities, I am of the belief that a circuit breaker or knife switch on the main line of the battery would be valuable. This, I believe, should come as factory equipment, and should be built as an integral part of the car. It should be remembered that such a switch must be very substantial construction, for under certain conditions it must carry as much as 200 amperes of current to the starting motor.

To make a knife switch cut-out popular with the public, I believe that its location must be such as to be convenient to the operator. This would imply placing the device in the drivers compartment, possibly just underneath the dash board. It might be advisable to place a protective cover over the switch, and on this could be placed suitable lettering to indicate the purpose of the cut-out.

The principal objection to a knife switch lies in the fact

that one may not throw the switch far enough thus leaving a gap over which there might be sparking. For this reason care should be taken that the material around the cut-out is non-combustible.

Conclusions:

1. A cut-out on the main line from battery would be valuable.
2. Cut-out should be located in driver's compartment in an accessible but protected position.
3. If a knife-switch is used, it should be enclosed.
4. The switch should be so installed that the circuit will be entirely broken.
5. The switch should be of rugged construction and capable of carrying at least 200 amperes of current.

Earl Humphrey, Chief, Charleston, Ill.: I believe the knife switch near the batteries is a splendid idea. My experience with garage fires leads me to believe that the public should be educated along the lines of fire hazards incidental to autos. If the motorists is to be sold the idea of auto switches it will be necessary to place them in a very convenient place.

John A. Grogg, Chief, Tiffin, Ohio: I am of the opinion that the suggestion relative to installing knife switches near the battery so that the circuit may be opened when the car is stored is an excellent one. The majority of motorists, I believe, could be convinced that the new device is one of mutual benefit both to himself and the public. If state, federal or city ordinances were passed to make the installation of knife switches such as mentioned above compulsory it would aid materially in reducing fire hazards such as are encountered in fighting auto fires.

W. M. Clairborne, Chief, Logansport, Ind.: This is a very good idea and it would do away with numerous car and garage fires caused by faulty wiring.

A good method of winning the public over to this idea, I believe, would be to get the cooperation of car manufacturers, and accessory men. Let manufacturers use it as a selling argument on new cars and the accessory man for equipping old cars. Newspaper and magazine advertising by Underwriters would be effective.

Otto B. Johannes, Chief, Columbus, Neb.: I believe the knife blade switch idea is a good one from a fire prevention standpoint, but who would take the time and trouble to use it? The average person would make use of the switch for a short time or until the novelty of the thing wore off. The switch would have to be automatic in order to be of any great value.

Elmer Keith, Chief, Corsicana, Tex.: A switch of this type would be of no harm but fires from this cause are very few.

Motorists who have no insurance would be the ones who would use the switch more than the insured.

A switch for this purpose would cause a lot of trouble to the average motorists for a sudden contact of the starter would burn the switch, due to the fact that this must be positive to insure quick starting and not sparking, which it would do when the switch has been used. I do not believe the idea to be a very good one.

P. Flint, Chief, Welch, W. Va.: I think that a knife switch will work satisfactorily if placed conveniently. The best way to win the public over to this idea is to show them that it will be a protection from fire while in storage.

Dwight C. Decker, Chief, Nutley, N. J.: In my opinion the more we do to prevent fires, the more we will reduce fire losses. The idea of a knife switch of this sort sounds good. If adopted it should be built in by the manufacturer. Plenty of publicity should put it over to the motorist.

James T. Doherty, Chief, Norwood, Ohio: I believe the idea of equipping autos with knife switches near the battery so that the circuit may be opened when the car is stored and thus reduce the fire hazard is excellent. We have had quite a few fires caused by short circuits in auto wiring while cars were standing over night. However I am afraid motorists would neglect throwing their safety switch, unless it could be so connected with the emergency brake or ignition switch, either of these would not cause an extra move and would protect the car at anytime the car was parked or stored.

F. J. Myers, Chief, Toledo, Ohio: The suggestion of installing knife switches near the battery in order that the circuit may be opened when the automobile is stored and thereby aid materially in reducing the fire hazard, is very good.

The public would adopt this new method if the fire insurance rates would be lower on automobiles so equipped. It would also be well to acquaint the car owner with the number of automobile fires caused by short circuit, etc.

Ray Tiller, Chief, Waterloo, Iowa: This idea of equipping cars with knife switches is a very good one.

To sell this idea to the public is largely a matter of educating them. A good plan, I believe, would be to have the switch automatic—power switch cuts off when the car stops so that it is necessary to throw the switch in to start the car.

It would be best to have the automobile companies equip cars with the switch and advertise the use of such a switch as a safety and fire prevention measure.

W. A. Buel, Chief, Parsons, Kan.: To my mind the automobile is entitled to this protection, the same as buildings are safeguarded by switches.

I think probably the manufacturers of automobiles would install such switches, if they were shown the real protection it gave the owner of a car in storage, even over night, or in case of an accident or fire caused by the electric equipment.

Ex-Chief Thomas F. Dougherty Loses Son

The day following Christmas, during the heaviest snowstorm of the season, Fireman John J. Dougherty of the New York Fire Department was laid to rest. He was troubled by a heart ailment, and his father, former Assistant Chief Thomas F. Dougherty, had called in the most noted cardiac specialist in the local area. Fireman Dougherty was recently taken ill with pneumonia and died two days later.

He was a fire-fighter for thirteen years, joining the service on August 1, 1920. Six years ago he was assigned to an engine company in the Hunts Point section. Mr. Dougherty is survived by his widow.

Just a year ago, Chief Dougherty lost another son, a lawyer, who died of ether-pneumonia following an abdominal operation.

Booster Tanks Replace Chemical Tanks

Nowadays, most fire chiefs know that the soda and mixture in a chemical tank are no more effective as a fire extinguishing agent, for all practical purposes, than plain water under pressure. The result has been the almost universal tendency to replace chemical tanks with booster or water tanks which not only have all the advantages and none of the disadvantages of the other but are obviously more economical and dependable.

Darley Booster Tank

In line with this trend, W. S. Darley & Co., of Chicago, build a complete booster tank unit (as illustrated), in sizes from 60 to 100 gallons, that can be set in the hose body of a pumper or mounted across the frame of a truck in place of an old chemical tank.

The Darley catalogue, copies of which may be had for the asking, contains an interesting discussion of the relative merits of chemical and booster tanks that's worth reading.

Mayor Curley of Boston, Mass., is scheduled to appoint four District Fire Chiefs, ten Captains and thirty privates of the Fire Department. Chief Fox asked for fourteen new Captains but the number was cut to ten and he disregarded the recommendation to make ten privates Lieutenants. There are at present 1,052 privates and the full quota is 1,112. Of the number in service, 73 are not performing fire duty.

Madison, Wis., has contracted to purchase a Mack aerial truck and a Seagrave 600-gallon pumper.

Questions and Answers

NOTE—Readers are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified

Relay Lines

To the Editor:

Will you kindly clear up the following points for me at your convenience?

Centrifugal pumper—Increasing motor speed increases pump speed, hence greater pressure obtained.

Then do we get a greater discharge of water? (Rated at about 700 g.p.m. at 120 pounds pressure.) What discharge at about 200 pounds pressure?

Kindly involve a problem using two three-inch lines from hydrant to first pumper and two 2½-inch lines from first to second pumper or such lines as you desire. I don't seem to be able to match them up with rules on page 128 and 129, of "Simplified Fire Department Hydraulics:"

"Where engine is operating at a pump pressure of 120 pounds, or thereabouts, the length of the hose line from second engine to nozzle would be three-quarters the length of the line from first to second engine;

"Where engine is operating at a pump pressure of 200 pounds or thereabouts, the length of the line from second engine to nozzle should be three-quarters the length of the line from first to second engine;

"Where engine is operating at a pump pressure of 250 pounds, or thereabouts, the length of the line from second engine to nozzle should be four-fifths the length of the line from first to second engine."

However, after reducing them to 2½-inch, I do arrive at satisfactory nozzle pressure in relays by using the friction loss principles as given.

Thank you for any information on above.

P. F. M.

Answer: Increasing the speed of a centrifugal pump increases the discharge pressure unless the discharge openings are increased at the same time. In the final analysis, the pressure you can obtain with the centrifugal pump depends upon the amount of water it is discharging.

A centrifugal pump of the parallel series type will discharge approximately 50 per cent of its rated capacity at twice the rated pressure. But the power of the motor behind the pump determines the maximum capacity as well as the maximum discharge pressure.

In the problem you give, a centrifugal pump of 700 g.p.m. capacity at 120 pounds pressure, using the parallel series type, should be able to give you around 350 g.p.m. at 240 pounds pressure.

With regard to the problem on relay layouts, involving 3-inch parallel lines and 2½-inch parallel lines, the following example will serve to illustrate the method of procedure:

Assume an engine at 200 pounds pressure is pumping through two parallel lines of three-inch hose to a second engine which feeds two parallel lines of 2½-inch hose.

It is desired to know the placement of each engine. For ease of explanation, let us call the layout between the first and second engine "B" and the layout between the second engine and nozzle "A."

If the hose diameters and layouts were the same, "A" would then be equal to ¾ of "B" or "B" would be equal to 4/3 of "A."

But due to the fact that there are different diameters of hose, an additional calculation must be made.

The factor for changing two parallel lines of 2½-inch hose to a single line is 3.6.

The factor for changing two parallel lines of 3-inch hose to a single line of 2½-inch is 9.35.

From a friction standpoint, 2 parallel lines of 2½-inch are 2.6 times as long as the parallel lines of 3-inch hose (or 9.35 divided by 3.6) though the actual length of both are alike.

Hence the layout between the first and second engine may be 2.6 times as much as would be obtained from the formula comparing it with the layout between the two engines and nozzle.

Then instead of B being equal to 4/3 of A we must say that:

$$B = 4/3\ A \times 2.6$$
$$= 3.48\ A \text{ approximately}$$
$$B + = 2{,}000 \text{ feet.}$$
$$A + 3.48\ A = 2{,}000 \text{ feet.}$$
$$4.48\ A = 2{,}000$$
$$A = 2{,}000 \div 4.48$$
$$= 446, \text{ or } 450 \text{ feet.}$$
$$B = 2{,}000 \div 450 = 1{,}550 \text{ feet.}$$

Or the length of lines between the first and second engines will be 1,550 feet and the length of lines between the second engine and nozzle, 450 feet.

Engines in Relay

To the Editor:

Please solve the following example.

An engine stationed at a hydrant, at which the pressure is 40 pounds, is pumping through 800 feet of 2½-inch hose to a second engine, which in turn delivers water through 400 feet of 2½-inch hose to a 1¼-inch nozzle.

Each engine is a second sized pumper.

What pressure is the first engine working at?

What is its discharge?

Is all of this discharge passing through the 800 feet of 2½-inch hose?

How many gallons per minute, and at what pressure, is the water entering the second engine?

What is the nozzle pressure?

Thanking you for solving the above problem.

C. M. R.

Answer: The problem you give is not simple in its solution. Unless definite engine or nozzle pressure is required, any number of solutions may be made.

The usual method of solving such a problem is to assume a desirable nozzle pressure, and then work back toward the engines to find out if the engines can give this pressure under assumed conditions. If they cannot, a lower nozzle pressure must be selected.

Taking as the first example a nozzle pressure of 60 pounds, we find the discharge to be as follows:

$$\text{Discharge} = 30 \times 1¼ \times 1¼ \times \sqrt{\text{p.}}$$
$$= 30 \times 1.56 \times 7.75$$
$$= 363 \text{ g.p.m.}$$

The friction loss caused by 363 gallons flowing per minute through 100 feet of 2½-inch hose is approximately 30.5 pounds.

Therefore, the friction loss in the hose from the 2nd engine to the nozzle would be 4 × 30.5 or 122 pounds.

Allowing 60 pounds nozzle pressure, the second engine would have to deliver 122 plus 60, or 182 pounds pressure, which it could do when delivering 363 gallons per minute.

But the first engine would not be able to carry the load imposed upon it, for it would be pumping through 8 lengths of 2½-inch hose, and the friction loss would be 8 × 30.5 or 244 pounds. A second size engine can not deliver 363 gallons per minute at 244 pounds pressure.

Hence we will have to try a lower nozzle pressure, for example, 50 pounds.

With this nozzle pressure, the discharge is approximately 321 gallons per minute. The friction loss per 100 feet of 2½-

inch hose carrying 321 gallons per minute would be 23.8 pounds approximately.

The total friction loss between the first and second engines would be eight times 23.8 or 190.4 pounds.

This would leave 10 pounds residual pressure for the supply of the second engine.

This nozzle pressure, 50 pounds, would be satisfactory both from the standpoint of delivery, and from the standpoint of load imposed upon the engine.

Chief Frank Charlesworth Honored

Chief Frank Charlesworth, of the Providence, R. I., Fire Department, was given a testimonial dinner in the ballroom of the Narragansett Hotel in Providence on the night of December 7.

Chief Frank Charlesworth

The invited guests included Governor Theodore F. Green and Lieutenant Governor Robert F. Quinn, of Rhode Island; Mayor James E. Dunne, of Providence; Hon. James G. Connolly, Law Revision Commissioner and toastmaster of the evening; and the Providence Board of Public Safety composed of George Marsh, Chairman, Michael Corrigan, Everett St. J. Chaffee, and Samuel Gee.

More than five hundred tickets were sold for the banquet. The Chief was given a humidor engraved in silver and containing a purse with about $500. A huge bouquet of yellow chrysanthemums was sent to Mrs. Charlesworth.

Among the fire officials present were Chief Daniel B. Tierney, Arlington, Mass., President of the New England Association of Fire Chiefs; Chief Fred A. Clark, Attleboro, President of the Fire Chiefs' Club of Massachusetts; Chief Henry A. Fox, Boston; Chief Frank E. Tracy, Woburn; Chief John A. Savage, Valley Falls, R. I.; Chief Joseph S. Lawton, Newport, R. I.; Ex-Chief Irving F. Patt, Central Falls, R. I.; Ex-Chief Reuben D. Weekes, Providence; Alfred N. Miner, Chairman, Massachusetts State Fire Prevention Committee; Chief Jeremiah F. Sullivan, Fall River, Mass.; P. Hildreth Parker, President of the Box 52 Association, Boston.

The speakers were Governor Green, Lieutenant Governor Quinn, Mayor Dunne, Chief Tierney, Chief Fox, George T. Marsh, James G. Connolly, and Walter A. Henry, of the Fire Chiefs' Club of Rhode Island, which arranged the banquet.

The souvenir menus contained a portrait of Chief Charlesworth and his service record. It showed he entered the Providence Fire Department as a private in July, 1898; was promoted to Lieutenant in 1907; to Captain in 1909; and to battalion chief in 1917. He became Chief of department in March, 1923. The menu also stated that in 1927 he was elected peer of toastmasters by the Conimicut Fire Company, and finally became father of the Fire Chiefs' Club of Rhode Island and patron saint of volunteer firemen.

The speakers paid high tribute to Chief Charlesworth. Mr. Marsh pointed out that the fire loss in Providence for 1932 was lower than any year since 1912 and that the 1933 loss will probably be even lower.

HARRY BELKNAP.

Fairfield County Chiefs Meet at Ridgefield, Conn.

Considering the bad condition of the roads and the extreme cold, there was an excellent attendance at the monthly meeting of the Fairfield County, Conn., Fire Chiefs' Emergency Plan, on the evening of Wednesday, December 28, 1933, at Ridgefield, Conn., there being 48 members present. The meeting was presided over by Chief Victor Veit, Stamford, President, and the members were welcomed by W. E. Rockwell, Selectman of the town of Ridgefield, and Chief Horace Walker, of the local Fire Department. An address was also made by Chief James N. Sullivan, President of the Fire Chiefs' Emergency Plan, of Westchester County, N. Y. Stuart White, of the Walter Kidde Company, New York City, gave a talk on the extinguishment of fires by the use of Lux Fyre Freez Extinguishers. This was illustrated by a one reel film.

Several important subjects were discussed at the meeting. One of these was the two per cent tax levied by the state of Connecticut on foreign insurance companies. Another was the question whether an exempt member of a volunteer fire company can collect from the State Firemen's Association, if injured while helping out at a fire. It was the opinion that he cannot collect. The jurisdiction of fire police at fires outside their own districts was also discussed. It was decided that the fire police cannot arrest anyone outside of their districts, but can hold the person accused for the proper authorities.

At the invitation of Chief Stapely, it was decided to hold the next meeting at Nichols, Conn., five miles North of Bridgeport, on the evening of Wednesday, January 24.

INDEX TO VOLUME LXXXVI

The Index to Volume LXXXVI, covering the issues of FIRE ENGINEERING from January to December, 1933, is now on the press and will be mailed to readers on request.

Lieut. Thomas F. Magner Badly Burned

Lieut. Thomas F. Magner, of the Bridgeport, Conn., Fire Department, narrowly escaped serious injury on Christmas morning when he and other members of the Headquarters Company were caught in a backdraft while fighting a fire of incendiary origin. He was burned about the face and ears and suffered injuries to the right shoulder. Firemen found turpentine-soaked rags and paper in various parts of the upper floor of the two-story frame building.

New Fire House Opened in Boston

A new fire house was opened in Boston, Mass., on Huntington Avenue. It is of brick, three stories in height.

There are three double doors for the passage of apparatus. On the second floor are the officers' quarters and dormitory. The third floor contains the recreation and smoking room, kitchenette and dining room, study room, toilets, showers, and lockers. Racks for drying hose are in the basement.

The building will provide quarters for Engine Company No. 37, Ladder Company No. 26 and for the Chiefs of District 8. It replaces the old fire house at the corner of Longwood and Brookline Avenues. HARRY BELKNAP.

Station Recently Opened in Boston, Mass.

WHAT'S BURNING

THE following list includes fires of $50,000 loss and over in the United States and Canada, for the month of December, 1933. These figures, compiled from the telegraphic reports are based on estimates made at the time, and are subject to later investigation and consequent revision. Taken as a whole, however, they are an approximately correct view of the losses incurred. The figures represent loss in thousands of dollars.

Month Ending December 29

	Loss in Thousands of Dollars
Little Rock, Ark.—Two Main Street business buildings	80
Boykins, Va.—Warehouse of J. S. Jenkins & Co	50
Eastport, Me.—Factory and warehouse of Booth Fisheries Co	80
Ashland, Ont.—First Presbyterian Church destroyed	80
Massena, N. Y.—Building housing White's Hotel and several stores	100
Walla Walla, Wash.—Warehouse of Stanfield Grrain Co	80
Mountain Lakes, N. J.—Rockaway River Country Club destroyed	50
Montreal, Que.—Dwelling of F. H. Clerque damaged	75
North Bay, Ont.—Business and apartment block	50
Chowchilla, Cal.—Hotel Chowchilla destroyed	50
Los Angeles, Cal.—Bldg. occupied by Pacific Tailoring Co	50
Lewiston, Me.—Business property occupied by L. Abramson	50
Jenkintown, Pa.—Store of W. C. Fleck & Sons	125
Ashland, Pa.—Several stores damaged	65
Easton, Pa.—Apartment building destroyed, W. Canal St	50
Pontotoc, Miss.—Sawilman Hotel and adjoining business property	80
Malden, Mass.—First Congregational Church destroyed	150
East Dayton, Ohio.—Plant of Browaell Boiler Co	100
Boston, Ky.—Business property	50
Waverly, Iowa.—Several business establishments	80
Anderson, S. C.—Warehouse of McGee & Bowlan damaged	60
Bramwell, W. Va.—High school building destroyed	65
Buffalo, N. Y.—St. Vincent Orphan Asylum, adjoining property	80
Mt. Clemens, Mich.—Mt. Clemens Sugar Co. warehouse	400
Pittsfield, Mass.—Business and apartment block	50
Culpepper, Va.—Brandy Station post office, adjoining property	50
Galesburg, Ill.—Farmers & Mechanics Bank building	50
Gibson, Neb.—Elevator of Nebraska-Iowa Grain Co. damaged	65
Lewiston, Me.—Two business buildings destroyed	80
Fernandina, Fla.—Plant of Fish Meal Co. destroyed	60
Manning, Iowa.—Several business establishments damaged	60
Chickasha, Okla.—Chickasha High School building destroyed	125
Montreal, Que.—Building at 1827 Catherine St. West, damaged	50
Sherman, Tex.—Plant of Kimbell-Diamond Milling Co	50
Chicago, Ill.—Thornton High School bldg. in Calumet destroyed	650
Columbus, Ohio.—F. & W. Woolworth store on R. Main St. damaged	65
Rensselaer, N. Y.—Garage of Herman Moch destroyed	50
N. Philadelphia, Pa.—Calvary Evangelical Church damaged	50
Nuremberg, Pa.—Geo. Harris silk plant destroyed	80
Central Falls, R. I.—Plant of Frost Paper Box Co	50
Fort Worth, Tex.—Warehouse of Fort Worth Steel & Mch. Co	50
Lawrence, Mass.—First Baptist Church destroyed	125
Jackson, Miss.—Plant of Jackson Fertilizer Co	200
Chicago, Ill.—Building occupied by S. & S. Bag & Burlap Co	50
Okmulgee, Okla.—Kennedy building damaged	50
Green Bay, Wis.—Oldenbrugh building damaged	125
St. Charles, Ill.—J. F. Colson & Co. department store	70

Four Alarms Sounded for Church Fire

The First Church in Malden, Mass., Congregational, was destroyed by fire on December 13 in a blaze which is believed to have started from an overheated furnace. When the first alarm was sounded at 2:11 a.m., dense clouds of smoke and a crackling sound indicated that the flames had already eaten into the walls and were traveling upward to the cock loft under the roof of the large frame edifice, which was erected seventy years ago.

Chief William J. Dooling
Malden, Mass.

A second alarm was ordered at 2:15; a third alarm at 2:20; and a fourth at 3:06. The Malden firemen were directed by Chief William J. Dooling, Deputy Chief L. A. Keddie, Deputy Chief William R. Moran, and Deputy Chief Arthur E. Miller. Under the mutual aid system, apparatus responded from Medford, Melrose, Revere, and Everett direct to the fire while two companies from Everett and one from Revere "covered in" at the central fire station in Malden.

Hose lines were run into the church both front and rear and attempts made to reach the seat of the fire by playing streams through holes chopped in the walls. The rapid spread of the flames, however, forced the firemen to direct streams from outside and from the roofs of adjoining buildings. Two Eastman deluge sets were operated from the front lawn and a Morse wagon gun was used from an alley at the east side of the church. Two firemen jumped from this piece of apparatus and narrowly escaped injury when a wall fell almost burying the wagon. Flames soon broke through the roof and tower, showering the entire neighborhood to leeward with sparks and blazing embers. Firemen were detailed to watch for roof fires.

Fighting the Church Fire in Malden, Mass.

Five post hydrants were used, the water pressure varying from ninety-seven pounds to 105 pounds except for one hydrant at which there was only sixty pounds pressure due to a dead end main. Fifteen lines of 2½-inch cotton rubber lined hose were laid. The size of nozzles was 1¼ inches with a 1¾-inch tip on the wagon gun.

The church was divided into two floors, the lower one being divided into two halls and anterooms and the upper being the main auditorium. About an hour after the blaze started the front tower collapsed and carried down what remained of the roof.

Chief Frank Newman, of Melrose; Chief Thomas McCarrick, of Revere; and Chief James Evans, of Everett, assisted the Malden officials. Other Chiefs who came to the fire were Chief William H. Hill, of Belmont; Chief Daniel B. Tierney, of Arlington; and Chief William F. McCall, of Stoneham.

Much credit was given Chief Dooling for the efficient manner in which he handled this blaze which was the first large fire to occur since he took office last June. The Chief was born in Malden on April 6, 1897; graduated from the Malden High School in 1916; served as radio operator in the navy, and as clerk to the Malden Fire Commissioner. He was appointed Chief on June 7, 1933, upon the retirement of Chief John T. Nicolls. Chief Dooling is a member of the Fire Chiefs' Club of Massachusetts; the Massachusetts State Firemen's Association, and the New England Association of Fire Chiefs.

HARRY BELKNAP.

New Material for Airplane Construction

Tests were conducted in England to prove the value of a new material for airplane construction. Letters placed in a box made of this material and subjected to an intense heat did not show any sign of the heat when removed. The inventor entered a box made of this substance, oil was poured on the outside, ignited and the flames activated to resemble fire conditions when an airplane crashes. The temperature on the outside was carefully registered. The temperature inside the box was 22° C., and the man felt no discomfort. Persons who witnessed the tests believe that an airplane made of this material will be free of the danger of bursting into flame.

A parade, a dance and a supper were arranged by Sykesville, Md., to celebrate the arrival of its new 500-gallon pumper.

CHIEF J. J. McELLIGOTT NAMED NEW YORK FIRE COMMISSIONER

Will Direct Administration of Department as Well as Being Active Head of Fire Forces—Member of Fire Department for 28 Years

WITH a change of administration on January 1, Chief John J. McElligott of the New York Fire Department was offered the administrative post of Fire Commissioner, succeeding John J. Dorman. He will retain the title of Chief. The Chief stated that he does not intend to be a "Swivel-Chair Commissioner," but that he will continue his fire-fighting career.

Chief J. J. McElligott

The Firemen Eligibles' Association issued the following statement concerning the appointment:

"Chief McElligott, in his twenty-eight years of service in the Fire Department from fireman through the successive promotions to Chief, has made an enviable record. He has proven himself a great leader and a progressive one."

He became Chief in March, 1932, and since then has made a number of changes for better efficiency. He has changed the running card so that less companies are sent out during the daytime on first alarms. Officers were ordered to shut down on high pressure lines when the fire is "killed." Improvements have been made in the fire protection of Coney Island.

Chief McElligott joined the department in 1905. In 1913 he became Lieutenant; Captain in 1914; Battalion Chief in 1922; Deputy Chief in 1925. In his spare time he studied navigation and was at one time the only member of the department licensed as a master pilot.

A charter amendment was passed by the Municipal Assembly designating the Chief of the Fire Department to service as Commissioner with the salary of the latter. The provision states that the Chief, in serving as Commissioner, will not forfeit his pension rights and privileges as Chief, or his civil service status. In this way the rights of Chief McElligott are protected.

Chiefs' Plan Hears Plea for Building Code

James W. Armstrong, Superintendent of Buildings, Yonkers, N. Y., and Chairman of a Committee on Uniform Building Codes of the National Association of Architects, made a strong plea for a uniform building code for Westchester County, N. Y., in an address before the Fire Chiefs' Emergency Plan, at its regular monthly meeting on the evening of Wednesday, December 20, at Fire Headquarters, Harrison, N. Y. In spite of bad weather conditions, the meeting was well attended. The members were welcomed by Supervisor Benjamin Taylor, of Harrison Township. A short description of the working of a floodlighting system was given by John C. Clendennin, of the Floodlighting Equipment Company, New York City. A proposed form of application blank for membership in the Plan was read by the Secretary, and was adopted as read. Several new members were elected.

A report on the last meeting of the Fairfield, County, Conn., Fire Chiefs' Emergency Plan was made by Chief Veit. of Stamford, its President, who said that the new organization was in flourishing condition and was rapidly increasing in membership. He invited the members of the Westchester organization to attend the next meeting at Richfield, Conn., on December 27.

Much regret was expressed for the death of Ex-Chief Walter Jones, of New Rochelle, N. Y. The members stood for a minute in silent tribute to his memory and the Secretary was instructed to send a letter of condolence to Mrs. Jones.

Ex-Chief Lounsbury, of Portchester, described the large department store fire which recently took place in that village. He paid a tribute to the assisting departments, for their promptness in responding to calls for aid and for the excellent and systematic work done by them, thus justifying the aims of the Plan.

Chief Brennan, Pelham Manor, suggested that the proposed code for oil burners should contain provision for the regulation of kitchen range burners, which he considered one of the worst hazards of the oil burner. Secretary Riviere said that the regulation of kitchen range burners would be included in the code.

Judge Hoop, of Bronxville, N. Y., President of the New York State Firemen's Association, brought the greetings of his association to the Plan in a short address.

The Secretary was instructed to send a message wishing a Merry Christmas and a Happy New Year to Chief Towle, of Larchmont, the "Father of the Plan," who was unable to be present.

On the invitation of Chief Gibson, it was decided to hold the next meeting at Fire Headquarters, Mount Vernon, N. Y., on Wednesday evening, January 17, 1934. Refreshments were served after the meeting by Chief Gus Burrell and the members of the Harrison Fire Department.

Newly Elected Chiefs

The following have been elected to head the Fire Departments in their respective municipalities:

Bridgeport, W. Va.—John Cook. Leland, Mich.—Karl Detzer.
Kingman, Ariz.—Toler D. White. Willmar, Minn.—Dwight P. Johnson.
St. Johnsville, N. Y.—Clark Fical. Toledo, Ore.—Mr. Gildersleeve.

Tower Erected as Volunteer Memorial

A tower 180 feet high and 450 feet above the level of San Francisco Bay has been erected atop Telegraph Hill, San Francisco, Cal., by the estate of the late Lillian Hitchcock Coit in memory of the volunteer firemen of that city. It is called the Coit Memorial.

Coit Memorial Tower

The City Planning Committee is preparing an ordinance to limit the height of buildings on all sides of Telegraph Hill so that the tower may be seen and the view from the balcony unblocked. Ground for the tower was broken on January 23, 1933, during appropriate ceremonies. The base structure is seventy-three feet square. The tower is forty feet in diameter at the base and 2. 5 feet in diameter at the top. It was erected at a cost of $125,000. It will be illuminated by floodlights so that the tower may be visible miles out at sea at night. The tower will also serve as a beacon for flyers.

The late Mrs. Coit held honorary membership in Engine Company No. 5. Her gold fireman's badge was always pinned to her street or evening gown, and she thought so much of her fire company membership that she even used the figure "5" as a suffix when signing her name to official documents.

C. W. GEIGER.

William Ziegler, former Fire Chief of Hackensack, N. J., has started suit against the city claiming that although he was under tenure of office, the City Council removed him. The city defends its action on the ground that the office was abolished and that the action was therefore justifiable.

CORRESPONDENCE

Protection for Tunnels

To the Editor:

Fire in underground workings where an air lock is used presents a difficult problem to the Fire Department from the point of fire-fighting and rescue work. Fire, starting where high air pressure is used, makes flammable materials burn fast and more readily. In workings of this type, shavings and hay are used to absorb seepage water. Due to the rapid spread of fire, the men working in these places are invariably trapped.

To open an air lock to let smoke or fumes out might cause these men to be engulfed in water or mud which would enter when the air pressure is lowered. A high air pressure is depended on to prevent water or mud from entering the shaft or tunnel.

Therefore, I would recommend an automatic fire alarm system and an automatic sprinkler system equipped with heads of twenty to thirty degrees higher fusing than the temperature of the workings. This sprinkler line should be extended as the bulkhead is advanced and the line should be plugged at the end. This line could be supplied with water from the nearest hydrant and should be protected from freezing where low temperatures exist, and against any damage that would make the line unserviceable. It would be well to carry a standpipe along underground for Fire Department use, provided with a Fire Department connection outside the air lock. There should be a standard gate valve inside the tunnel. At present the only way that water for fire use can be supplied to a place of this kind is through the grout line which is generally a four-inch pipe.

Fire Departments are not equipped with the proper reducers for making connections to this line. Such reducers should be provided by the contractor. Care must be taken where the grout line is to be used. It should be washed out before the hose is connected, so as to free it of concrete or broken stone, which would otherwise tend to plug the hose or playpipe.

This line is to be used only where it is possible to send men with masks into the tunnel, carrying two or three lengths of hose, depending on the length of the workings. Care must be taken that the supply of water for fire-fighting be shut off as soon as possible so that flooding may be prevented. Unconscious men would be drowned by flooded tunnels. I would recommend that the pump used to expel seepage be kept running to prevent flooding and that a provision of this kind be advocated by the State Labor Commission, under whose jurisdiction matters of this nature are referred.

Yours truly,
D. V. SHANAHAN,
Engine Co. No. 5,
Newark, N. J.

Foam Protection for Flammable Liquids

To the Editor:

The December issue of FIRE ENGINEERING describes on page 394 the oil fire which occurred at Tiverton, R. I. on November 1.

It is felt that the statement in the article that "unsuccessful efforts were made to fight the blaze with foam lines" might lead a person not in possession of all the facts to the conclusion that foam is not a successful agent for combating such fires.

Innumerable flammable liquid fires have been extinguished in their incipiency by foam portable equipment, which fires seldom, if ever, come to the attention of the general public. No one will ever know how many of such fires have been prevented from breaking into front page news because of well planned effective fire protection provided before the fire starts.

It is not to be expected, however, that the installation of any foam equipment is a complete answer to the acute need for proper fire protection, particularly those involving highly flammable liquid. These pass rapidly from the proportion of a small fire easily extinguished to a roaring conflagration requiring the marshalling of all available reserves. The germ of success of adequate foam equipment, like that of all other emergency equipment, has its origin in proper selection of apparatus and planning beforehand for all reasonable contingencies which might arise at the time the emergency occurs. In the case of foam systems, these include equipment of proportions consistent with the size of the property and the extent of the fire area; sufficient quantities of foam producing materials; correctly selected and located delivery equipment such as pipe lines and pumps; accessibility of control mechanism; well maintained auxiliary apparatus and training of plant personnel. Foam systems lacking these may appear to provide proper fire protection. On the contrary, however, they may engender a false sense of security which becomes apparent only at the time of emergency.

Had consideration of these factors been given and adequate fire protection provided beforehand, instead of depending upon the marshalling of foam equipment from other locations after the fire started, the Tiverton story would have been different, or there might have been no Tiverton story at all.

Yours very truly,
F. H. STEINICKE,
Assistant Sales Manager.
Fire Protection Equipment Division,
American-LaFrance & Foamite Industries, Inc.

November Fire Losses Reduced

Fire losses in the United States for the month of November totaled $22,454,200, according to figures announced by the National Board of Fire Underwriters. This was an increase of 4.6 per cent over the October losses but is a decrease of 27.95 per cent from the losses for November, 1932. For the first eleven months of 1933, the losses equaled $290,271,294, a decrease of nearly $113,000,000 as compared with a similar period the previous year.

Oscar A. Grabb Chief of New Rochelle

The new Chief of the New Rochelle, N. Y., Fire Department, Oscar A. Grabb, has followed the rise of the unit from a small volunteer force to its present status of one of the most efficient departments in Westchester County. He was born in New Rochelle on February 8, 1890, and received his education in the schools of the city. He joined Relief Engine Company No. 2, a volunteer organization of the village, on March 14, 1911. At the age of 24, three years after his enlistment, he was elected Second Lieutenant of the company. Promotion to First Lieutenant came a year later, and after serving two years in this post, Mr. Grabb was made the youngest captain ever to hold office in his city.

During the World War, Mr. Grabb served at the Pelham Bay Naval Reserve Station, being in a post of supervision over 300 government employees at the station. At the close of the war he was appointed Secretary to the New Rochelle Police Board and as Deputy City Clerk. These positions he resigned to become First Deputy Chief under the late Chief Jones. For this post Chief Grabb passed the civil service examinations as top man, and was also second to Jones in the examination for Chief. He was appointed as head of the department on the retirement of Chief Jones on October 1, 1933.

Chief Grabb is a Director in the Fire Chiefs' Emergency Plan and a member of the New Rochelle Exempt Firemen's Association. He also holds membership in the New Rochelle Bowling Club, the Rotary Club and F. & A. M. He is married and has two children.

"Graft Line"

Under the above title, a very interesting story by Karl Detzer, built around the purchase of inferior fire hose appears in the January 13, 1934, issue of "The Saturday Evening Post." The story demonstrates quite convincingly the danger of buying cheaply built hose.

Chief Ray Tiller, of Waterloo, Ia., recently completed fourteen years as head of the department and twenty-five years as a member of the service. He entered the department in 1908, when he was but eighteen years old. When he was promoted to Chief, he was twenty-nine years old.

CHECKING PROPERTY LOSSES BY AUTOMATIC ALARM SUPERVISION

Description of Systems Required by the Canadian Board of Fire Underwriters for Supervisory Alarms

By S. C. DeWitt

BY automatic supervision I mean a system that not only sends in an alarm in case of fire but supervises itself as well. By this I mean that if any part of the system gets out of order it sends in its own trouble signal. It is not dependent on the Fire Department testing it out once a week and then perhaps having it go out of order an hour afterwards. I am not telling any secret when I mention that the inspectors of the C.F.U.A. in making an inspection in one city a little over a year ago found six bells connected from sprinklered plants to the Fire Department inoperative. These were not supervisory systems and had nothing to show they were out of order.

In cities large enough to maintain private Central Stations all signals and alarms go to that station. Fire alarms are transmitted instantly to the Central Station and the Fire Department. In smaller cities supervisory systems are used in which the fire alarm and trouble signal go direct to the Fire Department.

Systems Required by Canadian Underwriters

I am going to explain the types of systems required by the Canadian Board of Fire Underwriters. It is generally conceded that the automatic sprinkler is the most efficient means available for protecting property from fire.

The next thing is to keep the water damage as small as possible. The supervisory system does this by promptly notifying the Fire Department.

Just what is a supervisory system? In addition to sending in a fire alarm caused by water flowing from a sprinkler, the system must have signals to show when a line is broken or grounded. There must be a gate valve closed when the water or air pressure is low. If there is a gravity tank, there must be a low water level and a low water temperature.

There must be a provision for a trouble signal for showing if the storage battery is run down or the case broken.

I am not going to tell how all these things work, but I want to emphasize the big difference between a supervisory system and a set of open circuit bells such as are found in most of the Fire Departments in Ontario.

You never know about these open circuit bells—they are generally tested out on Monday mornings and they generally are all right. Are you sure that they are all right until the next Monday morning? Would you know it if a line broke or a fuse blew? They would then be inoperative. Is such a system safe enough to report fires?

I have spoken about sprinklered buildings and it is not generally known that supervisory alarms can be installed in buildings that are not sprinklered. These, of course, will do nothing to control the fire as the sprinkler does, but will promptly report the fire.

Canadian Automatic Fire Alarm Systems

Automatic fire alarm systems installed in Canada consist generally of a copper tube run around the ceiling and having detectors at the end of the tube. A quick rise in temperature sends in the alarm. This then becomes a thermostatic system. To be dependable it should be supervised—that is it would have its own signal to tell if any part of it is out of order. The weekly tests, while they may be made, are not necessary. This system can be installed so that it is as thoroughly supervised as the one described for the sprinkler.

The Underwriting Boards also require that supervisory systems should be kept under inspection by the company installing them and should not be dependent on the Fire Department making weekly tests or upon local contractors who may not understand the installation.

Make Work of Fire Department Easier

Such systems as outlined instead of making the work of the Fire Department harder make it easier. As the Fire Department is endeavoring to serve the public and give it protection, anything that will help this department increase the promptness and value of its service will be appreciated by the community.

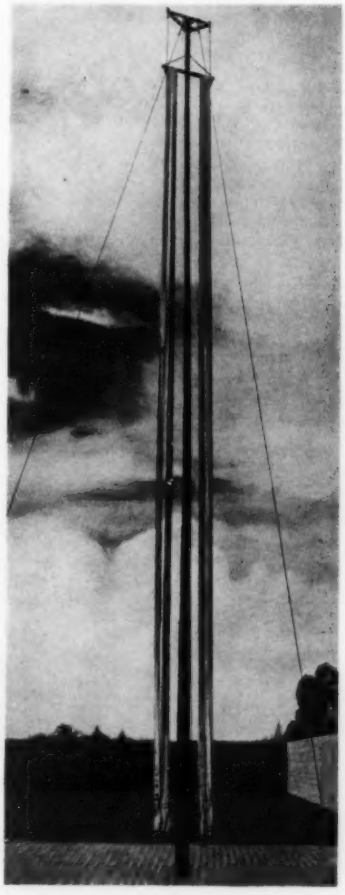
(From a paper read before the annual convention of the Dominion Association of Fire Chiefs.)

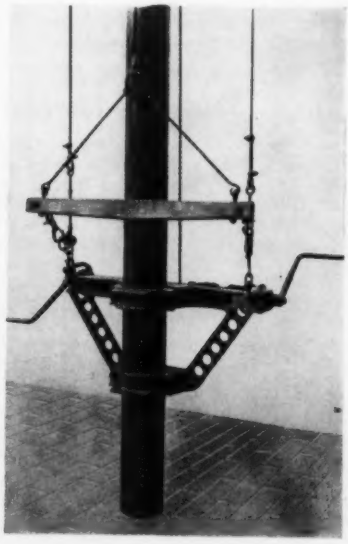
McPherson Hose Shoe Aids Men

Patents have been granted to Duncan McPherson for a hose shoe which is now being marketed by the General Apparatus Corporation, Los Angeles, Cal.

The device was designed to be instantly attached to a hose back of the nozzle to simplify the work of handling charged lines under pressure. The empty hose can be mounted on the shoe with an open nozzle pointed at an object. The water pressure can then be turned on from a remote point and the device will not move but will hold the line in position. The shoe weighs thirty-three pounds. An attractive rack is provided for holding the hose shoe on the running board.

On the ground, the hose shoe converts back-pressure into a downward pressure.





Outdoor Hose Dryer

Two views of hose drying equipment in use by the Fire Department of Melbourne, Australia. A vertical staff is erected supported by guy wires. This staff has a carriage which may be raised or lowered by means of the manually operated drum shown in the illustration at the right. The length of hose are placed over the bar, and the bar with the hose is then raised to its topmost position.

Chief Hawkins, of Haverhill, Retired

Chief William H. Hawkins of the Haverhill, Mass., Fire Department has retired on a pension. He was formerly President of the Massachusetts State Firemen's Association. Chief Hawkins is a member of the Fire Chiefs' Club of Massachusetts and the New England Association of Fire Chiefs. He is popular among the New England officials and has taken an active interest in Fire Department developments.

Ex-Chief William H. Hawkins

Chief Barnett Dead

Chief James H. Barnett, Provincetown, Mass., died at his home, on November 27 at the age of eighty-three years.

He became a member of the Fire Department in the days of the old hand tubs 65 years ago, and Chief of the Provincetown Fire Department in 1903. Chief Barnett was a member of the Board of Trade and took an active interest in all the affairs of the town. Up to his last illness he personally handled the administration of the Fire Department and attended all alarms. He is survived by his sister. It was under his direction that the fire apparatus of the town was motorized and all the equipment brought up to date.

HARRY BELKNAP.

Firemen Given Boat Training

Firemen of the Los Angeles Fire Department who are stationed at land stations in San Pedro, Wilmington and on Terminal Island, are given special training in operating fireboats. Three fireboats are used. The men report in groups of twenty, five days a week. Each group receives two hours of instruction and drill every two weeks. The course will continue for eighteen months.

Chiefs' Club Holds Christmas Party

The annual Ladies' Day and Christmas Party of the Fire Chiefs' Club of Massachusetts took place on December 20 in the Georgian Room of the Hotel Statler, Boston.

President Fred Clark, Chief of the Attleboro Fire Department, directed the proceedings and was assisted by Chief Selden R. Allen, Brookline, President of the International Association of Fire Chiefs.

A tribute was paid to Chief James M. Casey, Cambridge, and Chief William H. Hawkins, Haverhill, both of whom recently retired on pension. A telegram was sent to Chief George L. Johnson, Waltham, who is recovering from pneumonia. The members stood for a moment in memory of the late John E. Sullivan, ex-Chief of the Plymouth Fire Department.

Souvenirs were given the ladies and there was a musical entertainment which was much enjoyed by the 250 persons present.

HARRY BELKNAP.

Two laborers were overcome and a foreman died as the result of fumes encountered in an empty tank of the Virginia Smelting Company, West Norfolk, Va. The cause of the fumes has not been determined. The tank had been out of service for three weeks and was open to the air. It is believed that sulphide gas had become trapped under scale on the bottom of the tank and was accidentally released by the workmen. The foreman died trying to rescue the laborers.

New York City Orders New Apparatus

New York City opened bids on December 27 for supplying new apparatus to the Fire Department. Orders for two pumpers were awarded to the Ahrens-Fox Fire Engine Company, and for four Seagrave pumpers. The city also purchased four Walter aerial ladders, two Four-Wheel Drive tractors and six De Soto cars for the use of department officers.

Both the Seagrave and Ahrens-Fox companies submitted bids of $13,850. For the aerial ladders, Seagrave presented a bid of $15,850 and the Walter Motor Company, $13,495. For the tractors the bid of the Four-Wheel Drive was $5,300; Walter Motor Company, $5,495, and Seagrave, $8,675. The De Soto cars will cost $1,025.65 each.

Legal action to withhold the carrying out of the pumper contracts is contemplated by one of the fire apparatus companies.

Chief Akin, of Birmingham, Resigns

Chief J. L. Akin, of Birmingham, Ala., resigned as head of the Fire Department, thereby ending a thirty-three-year fire record. He was Chief for ten years. His resignation was followed by charges, a day later, that he entered a fire station and had a fistic encounter with a fireman.

A committee of firemen announced that they intended to bring charges of "general unfitness," against Chief Akin at a meeting of the Civil Service Board. Upon hearing of this, Chief Akin sent the following letter of resignation to be effective at once:

"Holding the interest and welfare of the city of Birmingham above my personal ambitions, and for the sake of harmony in the Fire Department of the city, I hereby tender my resignation as Chief of the Fire Department of the city of Birmingham to become effective December 26, 1933."

On the day after he had handed in his resignation, Chief Akin entered Station No. 1. According to the complainant, the Chief struck him twice while the fireman was drinking coffee. Following the brief fist encounter, the Chief, it is said, left the station without saying a word.

The attorney for the firemen's group advised that a warrant be secured on the grounds of assault and battery. Chief Akin posted a $100 bond.

Chief Akin is eligible to a monthly pension of $137. A. Brown, First Assistant Chief, has been named Acting Chief until a new department head is appointed.

Chiefs Examining an Installation of the Vitalarm Signal

Chief Selden R. Allen, Brookline, Mass., President of the International Association of Fire Chiefs (right) and Chief John W. O'Hearn, Watertown, Mass., Secretary, New England Association of Fire Chiefs, are examining an installation of the new Vitalarm signal mounted on the ceiling.

ADVANTAGES OF 1½-INCH HOSE FOR CERTAIN CLASSES OF FIRES

Light Line to Handle and Unlimited Water Supply When Attacking Small Fires Help to Lessen Damage

By Chief W. L. Andrews
Fire Department, Sudbury, Ont., Canada

SOME six years ago, in conversation with the late Chief McLeod of Port Arthur, in the use of chemicals at fires, he advised me at that time to try out 1½-inch hose, as he was using it in his department. I found it worked a hundred per cent on fires of not too great proportion. Shortly after that time I equipped the pumper that was to answer first alarms, with one hundred-and-fifty feet of 1½-inch hose with shut-off-nozzle attached. I then had a reducer made, at one of our local machine shops, from 2½ inches to 1½ inches; with a swivel on the 2½-inch end. This is carried on the running-board of the truck where it is always readily accessible when it is needed.

The following orders were then given the officers of the department: Upon arrival at the scene of the fire, if the fire was not too far advanced, the first line laid was a 2½-inch from hydrant to curb. It was then up to the officer in charge to estimate as to what extent the blaze had progressed. If it was the opinion of the officer that the fire could be handled by the small line, the 1½-inch was connected at the curb to the 2½-inch; and the signal given for water. If we find that we have not a sufficient amount of water, it is only a moment's work to disconnect your 1½-inch from the 2½-inch line, and connect the nozzle to the 2½-inch line. Because you have your 2½-inch line, with plenty of slack, already at the curb.

On my second pumper I carry the same amount of 1½-inch and shut-off-nozzle with ½-inch tip. But in this instance the first line laid to the curb is a 2½-inch with nozzle attached. While this 2½-inch line is being stretched, the 1½-inch line is being laid out from curb to building; and ready to be connected to the 2½-inch line, by taking off the tip of the shut-off-nozzle on the 2½-inch, and using a connection we have, from 1½-inch to the thread size in this shut-off-nozzle. In this case the water can be controlled by the shut-off at the curb.

Advantage for Small Departments

I would say the 1½-inch hose is a big advantage in small departments, as it takes less men to handle it than the 2½-inch line. We will say for instance you have a roof fire, caused by wooden shingles, which most of us have still to contend with. The fire has worked its way through the sheeting, and into the attic. In this case you lay out your 2½-inch line; and we will presume your ladder is already raised to the roof. In many instances, just as your men start up the ladder, the hydrant man turns on the water; and we all know that it is not a very easy task to take a charged line up a ladder, especially when you have not sufficient men. On the other hand your 2½-inch line is laid to the curb, you can connect your 1½-inch line; and one man can run up with this line without much difficulty.

Another instance for argument's sake! We will say a fire occurs on the third floor of a high class building in the residential section of your town or city. By the time the Fire Department has arrived on the scene, the fire has enveloped a couple of rooms. In many residences the third floor is finished to perfection the same as the other floors. As you ascend the stairway to the location of the fire, after viewing it, you are not just sure if your chemical (which is usually thirty-three gallons, if you should so happen to have this equipment attached to your truck) would be sufficient to cope with this fire. Then you may have a Booster tank with an eighty or a hundred gallon capacity on your apparatus. But when that is exhausted, you have to lay a line from your hydrant to keep your tank going, or get some other means of keeping it filled up. Then we all hate to drag a 2½-inch line over a highly polished floor, and up a couple of flights of highly polished stairs with beautiful balusters. In many instances the 2½-inch couplings may be not just tight; and then there is the old pin-lug catching and doing damage that is unwarranted. On the other hand you have your 2½-inch line to the street, with your 1½-inch connected at the curb; and a couple of men can pick up this line, and get in to the scene of the fire. If the fire is not too far advanced—we will say confined to a couple of rooms—I have found it could be extinguished very quickly with the use of the 1½-inch line.

Advantage of Light Line to Handle

My argument is that you have an unlimited supply of water at your command, you have a light line to handle, so that you can move from one position to another much easier than you can with a heavy line. I would also say that you have a line that is far superior to a chemical line, a line from your Booster tank; or a 2½-inch line, providing your fire is not advanced too far. If you find your fire is getting the best of you, it is only a moments work to disconnect at the curb, and run up with your 2½; but if proper judgment is used at the start, this will seldom happen.

In comparison of the two methods of systems, the possibility of lost efficiency must be given serious consideration. It is an admitted fact that you have not the volume of water with an 1½-inch; but experience has taught me, that it is not the quantity of water that counts so much, in certain fires. It is the manner and where it is placed that counts. I would say the use of the small line would, no doubt, create an approved efficiency in small departments, in that it is much easier handled than a heavier line.

More Damage Caused by Water Than Fire

I have found in my years of experience, that in many instances more damage is caused by water than by actual fire. This, I claim, is another argument in favor of the small line; and I doubt very much if there is anyone, with any experience in fire fighting, who will not agree with me in this statement. In this paper I am only giving what I have found out from experience. But I firmly believe that any Chief that wants to try an 1½-inch line in his department, will find out for himself, that it is just the thing for certain fires, that, as I have said before, are not too far advanced.

(Excerpts from a paper read before the annual convention of the Dominion Association at Peterborough, Ont.)

Chief Koen, of Salem, Mass., Dead

Chief James S. Koen, Salem, Mass., President of the Massachusetts State Firemen's Association, died on December 21 at his home after an illness of several months.

The Late Chief James S. Koen

He was a member of the Salem Fire Department for thirty-four years and chief since 1932. He was fifty-eight years of age. Koen attended the public schools in Salem and in 1891 became a member of the Salem Police Department, leaving a few years later to become a relief driver in the Fire Department. He was appointed a permanent fireman in 1902 and in 1915 he was promoted to Lieutenant.

He advanced successively to Captain and Acting Deputy Chief and in 1916 became a regular Deputy Chief. Chief Koen attended the Boston Fire College in 1921. He became Acting Chief in 1930 and was appointed Chief on June 9, 1932, upon the retirement of the late Chief Kimball.

Chief Koen was one of the best liked fire officials in New England and was serving his fifth term as President of the state firemen's association. He was a member of the Fire Chiefs' Club of Massachusetts, the New England Association of Fire Chiefs, and the International Association of Fire Chiefs. He is survived by three sons and four daughters.

HARRY BELKNAP.

Members of the Jacksonville, Fla., Fire Department presented a solid gold badge to Chief W. Q. Dowling, and a badge to Deputy Chief G. E. Hare, to show their appreciation of the new officers.

PROPOSED IMPROVEMENTS

Monterey Park, Cal.—Plans are being drawn up for proposed new fire station. Floyd Brown, Chief of Fire Department.

Greenwich, Conn.—Fire Chief Isaac M. Hubbard recommended the purchase of new apparatus and a new fire station.

Ayer, Mass.—A new fire station is to be erected here.

Davenport, Iowa.—City to apply for federal grant for erection of a fire station in northwest section of city. Estimated cost $25,000. George Tank, Mayor.

Ballwin, Mo.—Movement started for the organization of a fire department to serve communities of Ballwin and Ellisville. Plans being made for purchase of apparatus. John F. Streiff, Temporary Chairman.

Little Compton, R. I.—The organization of a volunteer fire department was voted. Stephen B. Wilber was named temporary chief.

Cranbury, Conn.—Cranbury Civic Association getting information relative to the purchase of a new fire truck.

Department and Other Reports Received

Michigan State Firemen's Association—Proceedings of the fifty-eighth annual convention of Michigan State Firemen's Association; illustrated, 109 pages.

Colorado State Firemen's Association—Proceedings of the second annual fire college and the sixteenth annual convention of the Colorado State Firemen's Association held at Sterling; illustrated, forty-one pages.

Philadelphia Fire Insurance Patrol—Sixty-third annual report of the Fire Insurance Patrol of Philadelphia, Pa.; twenty-nine pages.

Baltimore Fire Insurance Salvage Corps—Fifty-eighth annual report of the Fire Insurance Salvage Corps of Baltimore, Md., twenty-three pages.

Maryland State Firemen's Association—Proceedings of the fortieth annual convention of the Maryland State Firemen's Association held in Frostburg, 136 pages.

Maryland State Firemen's Association—Charter, constitution and by-laws of the Maryland State Firemen's Association, sixteen pages.

Louisiana Fire Marshal—Twenty-eighth annual report of the Fire Marshal of Louisiana, forty-six pages.

Fire Marshal of British Columbia—Eleventh annual report of the Fire Marshal of British Columbia, twenty-three pages.

Oregon State Fire Marshal—"Fire Hazards of the Farm and Home," a twenty-page illustrated booklet prepared for 4-H clubs by the Oregon State Fire Marshal.

Colorado State Firemen's Association—Report of proceedings of the Third Annual Fire College and the Seventeenth Annual Convention and Tournament of the Colorado State Firemen's Association; forty-eight pages illustrated.

Montana State Firemen's Association—Proceedings of the Forty-second annual convention of the Montana State Firemen's Association held at Havre; thirty pages.

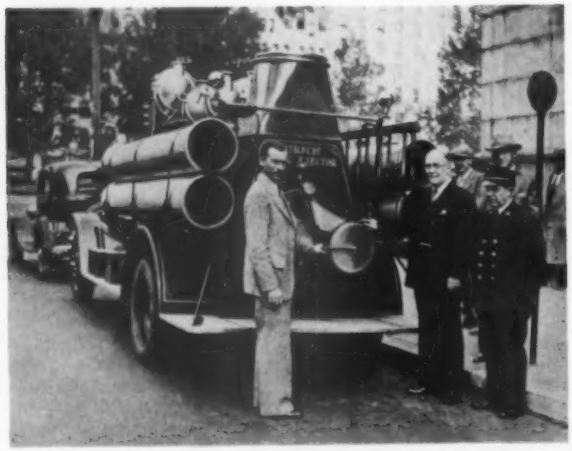
Milwaukee, Wis.—Text of the act relating to the Firemen's Annuity and Benefit Fund, Milwaukee, Wis.; 108 pages.

South Dakota Fire Marshal—Twenty-sixth annual report of the South Dakota State Fire Marshal; twenty-three pages.

Indianapolis Fire Prevention Division—Report of the Division of Fire Prevention, Indianapolis, Ind.; three typewritten pages.

Melbourne Fire Brigade—Annual report of the Metropolitan Fire Brigades Board, Melbourne, Australia; illustrated.

Wilmington, Del.—Twelfth annual report of the Superintendent of Public Safety, Wilmington, Del.; eighty-six pages, illustrated.



Volunteer Firemen Receive Smoke Ejector

A Peter Pirsch smoke ejector has been delivered to the volunteer Fire Department of Hyattsville, Md. Chief Noble F. Rushe is explaining its operation to Chief George S. Watson and Deputy Chief O. E. Fern of Washington, D. C. Besides serving as a smoke ejector, this machine has six floodlights, a 2-kw. generator driven by the apparatus motor, and two reels, each containing 200 feet of cable so that the lights may be moved about.

Chief Casey of Cambridge Retires

James M. Casey, Chief of Cambridge, Mass., Fire Department has retired from the service after many years active duty. His father was the late Chief Thomas J. Casey who served as a member of the Cambridge Fire Department for fifty years from 1854 to 1904 and department head for twenty-five years.

Chief James M. Casey is sixty-eight years old. In the days of the horse-drawn buggy he used to drive his father to fires. In 1888 he was appointed a call fireman and in 1892 was made Assistant Engineer. The following year he became the Chief's driver and in 1898 was advanced to Lieutenant. In 1905 he was appointed Assistant Chief and in 1916, Chief of Department.

He is a member of the Fire Chiefs' Club of Massachusetts, the International Association of Fire Chiefs and is a director of the New England Association of Fire Chiefs.

Ex-Chief James M. Casey

Three-Alarm Fire

Three factory buildings were destroyed by a three-alarm fire at Dayton, Ohio, December 11. The blaze was discovered at 6:23 p.m. in the section of the factory housing power equipment. District Chief Yiker answered the first alarm and immediately ordered second and third alarms. The buildings demolished housed machinery for manufacturing heavy boilers. The cause of the fire is not known. The loss is estimated at $150,000.

CONVENTION DATES

Jan. 18—NEW JERSEY MUNICIPAL SIGNAL ASSOCIATION. Next meeting, Ridgewood, N. J. Corresponding Secretary, Frank J. Dolan, Jersey City, N. J.

Jan. 24—FAIRFIELD COUNTY FIRE CHIEFS' EMERGENCY PLAN. Monthly meeting, Fire Headquarters, Nichols, Conn. Secretary-Treasurer, John Moehring, Toms Road, Stamford, Conn.

Feb. 3—MID-HUDSON-HARLEM VALLEY FIRE CHIEFS' ASSOCIATION. Next Meeting, Carmel, N. Y. Secretary, Chief Myron L. Kilmer, Fairview, N. Y.

April—CONNECTICUT FIRE CHIEFS' CLUB. Next Meeting, Norwich, Conn., exact date to be announced later. Secretary-Treasurer, D. B. Mercer, 108 Harrison St., New Haven, Conn.

May 9—DEL-MAR-VA VOLUNTEER FIREMEN'S ASSOCIATION. 5th Annual Convention, Lewes, Del. Secretary, Fred Brown, Minquadale, Del.

June 12-13—MINNESOTA STATE FIRE DEPARTMENT ASSOCIATION. 62nd annual Convention, Hibbing, Minn. Secretary, Fred Pfaender, New Ulm, Minn.

June 20-22—MARYLAND STATE FIREMEN'S ASSOCIATION. 42nd Annual Convention, Cambridge, Md. Secretary, George R. Lindsay, Hagerstown, Md.

July 10-13—PROVINCE OF QUEBEC POLICE AND FIRE CHIEFS' ASSOCIATION. 2nd Annual Convention, Hotel Chateau de Blois, Three Rivers, Que. Secretary-Treasurer, Robert N. O. Harrington, Chief Fire Dept., McColl-Frontenac Oil Co., Ltd., P. O. Box Suite 8, Windsor Hotel, Montreal, Can.

July 17-18—MARITIME FIRE CHIEFS' ASSOCIATION. 20th Annual Convention, Truro, N. S., Can. Secretary-Treasurer, K. J. MacRae, Capt. Salvage Corp., St. John, N. B.

Sept. 17-20—CALIFORNIA STATE FIREMEN'S ASSOCIATION. 12th Annual Convention, Santa Cruz, Cal., Secretary-Treasurer, H. E. Strasser, 1171 Tenth Ave., San Diego, Cal.

The Latest in Fire Department Protection!

☛ Not Only a Complete Bunker Suit, but a New Combination Rubber Suit with a New Detachable Mackinaw 20 Ounce Wool Lining

Fire Chiefs consider this newest Combination Suit the most scientific and practical ever designed for the protection of their men.

It would be a pleasure for us to show every fireman personally the unusual features of the coat and pants construction and how a "Suit Within a Suit" is made and put together.

The outside suit, both coat and pants, is made of double coated black rubber; a material treated with a special finish. It is WATERPROOF, of course. BOTH THE FABRIC AND COATING ARE MADE TO THE STANDARDS OF THE U. S. GOVERNMENT.

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W. S. DARLEY, Pioneer of Direct Sales

The outer trousers are made of the same special waterproof rubber cloth and have two side pockets, one back pocket, suspender buttons and in addition a take-up strap. ☛Trousers have a 29-inch inseam.

The outer coat seams are sewed, cemented and STRAPPED for additional strength and then STEAM VULCANIZED. Pants seams are sewed, cemented and steam vulcanized.

The purpose of Bunker Suits is to protect the body of the fireman ☛against WATER, RAIN, SLEET, COLD and also to give protection against HEAT when fighting a hot blaze.

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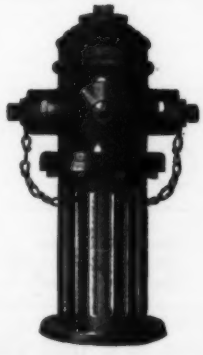

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WHAT THE FIRE MARSHAL'S OFFICE CAN DO FOR FIRE PREVENTION

Should Promulgate Rules and Regulations for the Purpose of Promoting Safety From Fires

By James M. Hurley
State Fire Marshal of Massachusetts

WE are living in an age when we see all around us new devices, new inventions, all aimed at increasing speed, and with the thought in mind of providing for quickness and easiness of despatch with the least possible effort. With many of these new inventions there comes increased danger to life and to property. A first glance at the front page of any newspaper and immediately we find evidence of the frightful toll we pay because of this lack of thought of our personal safety and the safety of others. We have only to consider what is happening on our highways since the advent of the automobile.

To be sure the automobile has done many wonderful things in promoting convenience and dispatch in traveling. We can travel distances today in the course of six or eight hours that were unthought of before the advent of the automobile. Facilities for business have been enlarged. Recreation and pleasure on a scale undreamed of have been made possible by the automobile. Yet what a price we are paying for it all—750 deaths in Massachusetts in 1931, 723 deaths in 1932. Unfortunately many of these fatalities are children of tender age who have paid the price for whatever gain we have enjoyed.

The Toll of Carelessness

Now in our own particular field, what is the situation? I am sure you will agree with me that the tremendous property loss, the tremendous loss in life in this country caused by fires is a challenge to us all.

Somewhere in the vicinity of $500,000,000 is the property loss annually suffered; 10,000 lives we annually offer up on the altar of carelessness. We shudder when we think of the pagan customs of old when children were offered in sacrifice to some pagan God. Yet, we, in this enlightened America, annually witness the sacrifice of thousands of children because we are not sufficiently interested to take the necessary steps to prevent such loss of life.

How Combat the Loss?

Now, what is necessary in order to successfully combat this enormous loss? First, we must establish and maintain the efficiency of our Fire Departments. We have good Fire Departments in New England. We have capable and efficient heads of those departments. We must see to it that not only is this standard maintained, but that it is improved wherever possible. We are passing through a period of economy in government. Everywhere demands are being made that the costs of government be cut. In this movement, we must guard against the weakening in any way of our Fire Departments. To lower the standards of our Fire Departments would be the costliest kind of economy. The losses the communities might suffer would be far greater than any economy that could be effected.

Fire Prevention Also Important

Now the fighting of fire—this overcoming of its dangers by the Fire Department is a positive work that can be witnessed and appreciated by the people. There is another important field that requires attention—that is the field of fire prevention. This is work of a negative character and has not the appeal of the positive work of putting out a fire. It is, however, most important.

I recently attended the national convention of the Fire Marshal's Section of the National Fire Protection Association. There I heard good reports showing the work of many of the large cities along this particular line. In the city of Milwaukee a splendid Department of Fire Prevention is maintained. Frequent inspections, good rules and regulations seeking to promote fire prevention, without question, is preventing many fires. In Massachusetts we established, in 1886, the office of the Fire Marshal in the city of Boston, whose duties were to inspect all fires in that city.

In 1889 an act was passed providing that the Board of Fire Engineers in each city and town shall investigate all fires. In 1894 the office of State Fire Marshal was established. Changes have been made from time to time, and today we have the State Fire Marshal, the executive head of the Fire Prevention Division of the Department of Public Safety.

This department is given wide jurisdiction in the way of promulgating rules and regulations for the purpose of preventing fires. Under our fire prevention laws, provision is made for the investigation of all fires, for the inspection, for the regulation of storage and keeping and the handling of inflammable and explosive fluids or compounds, with many other provisions in the law seeking to promote safety from fires.

I believe that as we go along, more and more attention will be given to this matter of fire prevention. It is along such lines we must meet this challenge of the constantly increasing losses in life and in property with which we are confronted.

(From a paper read before the annual convention of the New England Association of Fire Chiefs.)

Chief Leonard of Taunton, Mass., Retires

Chief Fred A. Leonard, of the Taunton, Mass., Fire Department, retired on pension on December 31, after serving for fifty-one years as a member of the Taunton force and thirty-two years as Chief Engineer. He is sixty-nine years of age and is a member of the Fire Chiefs' Club of Massachusetts, the New England Association of Fire Chiefs, and the International Association of Fire Chiefs. In submitting his petition for retirement at half pay, Chief Leonard asked to be permitted to continue as Supervisor of the fire alarm and police signal system in Taunton. HARRY BELKNAP

John E. Sullivan, Ex-Chief of Plymouth, Mass., died recently. He was a member of the Fire Chiefs' Club of Massachusetts, the New England Association of Fire Chiefs and the International Association of Fire Chiefs. Many New England Chiefs attended the funeral on December 19.

Plattsburgh, N. Y., is seeking a site on which to erect a combination fire and police station with PWA funds.

Drill Tower Practice Perfects Firemen

Members of the Hopkinsville, Ky., Fire Department at drill on their tower. On ladder from top to bottom: Charles Dulin, Harry Heron and Dorris Chewning. Men working improvised cellar pipe at bottom of tower: Ed. East and John Payne. Hanging on rope: Clarence King. On top of tower, l. to r.: Garland Morse, J. E. Perry, Stanley Ward and Austin Morgan. Joseph East, Chief, and his department, with the cooperation of the citizens of Hopkinsville, have been successful in reducing the fire loss in the city.

WHAT SHOULD BE STRESSED IN TEACHING FIRE PREVENTION TO PUBLIC?

Subject Should Be Treated in Interesting and Not Too Dry Manner, in Order to Hold Attention of Hearer and Impress Its Need

By T. Z. Franklin
Manager Special Hazards Department, Automobile Insurance Company, of Hartford, Conn.

FIRE Prevention as a live subject has but a small place in the activities of the average citizen. Most persons are not enough interested to realize that there is a certain benefit awaiting them, should they gain and put into practice even a slight working knowledge of the subject.

Of course, I am willing to concede that the subject as too often discussed is rather deadly and monotony quickly kills interest. After all, the making effective of real fire prevention measures is merely the application of good common sense, plus a little knowledge of basic principles, plus at least a slight realization of the profit to be gained by following such practices. What the eye sees, the mind usually retains. Therefore, if we can place before the average person a certain few common hazards in such a way as to visualize those hazards, we can hold his interest and probably implant in his mind certain fundamentals that will never leave him.

The Dust Hazard

Let us begin with the so-called "dust hazard." Such a hazard exists in many more places than one might suspect off hand. We find it to a greater or less degree in coal mines, coal grinding plants, cork mills, linoleum plants, soap works, milk powder plants, flour and feed mills, grain elevators, starch factories, metal powder plants, woodworking plants, threshing machines—in fact, in any factory or property where fine dust of a flammable material is made or is handled. Such dusts, when of the requisite fineness and when mixed with air in the proper proportions, are as explosive as gas mixtures, only needing a spark or flame to ignite them and thus pull the trigger of disaster.

The Electrical Hazard

Let us consider for a moment the electrical hazard. It is just as well to state at the start that it is not the use, but the misuse of electricity that causes our troubles. The National Electrical Code has now been in operation for a sufficient length of time so that almost all original electrical installations are or should be made in conformity therewith; so we usually start with a good factor of safety. Yes, the installation is properly made, the right fuses are put in place, and the good electrical equipment is turned over to an owner to have and to operate and to change to an owner who knows little or nothing about it. If the latter knows nothing it probably will not be so bad, because if additional wiring is wanted, or if a fuse blows, or something else happens, he will get in touch with a competent electrician or the electric light people and they will take care of things as they should be taken care of. But, if the owner knows a little—well "a little knowledge is a dangerous thing."

Unfortunately, too many of us are in this latter class. We love to tinker. We add equipment and additional wiring, not realizing where we are headed. Due to overload a fuse has blown. We put in another and again it blows. We look on the end of the fuse plug and see the figure "15." We don't know just what "15" really means, but let's get one with "50" on it; "50" is considerably more than "15" and maybe that will do the trick. Or possibly this happens in an apartment house, where the janitor has a smattering of electrical lore and, being indolent by nature and seeing no good in constant fuse replacemets, he short-circuits the fuse by means of a coin or piece of metal. The stage is now set for dangerous overloading, with the consequent heating and arcing that causes fires.

The Gasoline Hazard

Let us turn to another thing that is yearly taking a very considerable toll in lives and in the destruction of property: gasoline and kindred liquids, particularly when used for home cleansing and for starting fires. Gasoline has but one place about the house, and that is in the tank of the automobile. When we consider its qualities, we may readily see that it has no place as a home cleanser, a use to which it is too often put.

(Excerpts from a paper read before the annual convention of the New England Association of Fire Chiefs.)

How Fires are Fought in a Land of Fighting Men

Killoogh, County Down, Ireland, depends on this type of fire apparatus for first line protection when blazes develop. The apparatus was being used, when the photograph was taken, for fighting a large department store fire.

Firemen Hurt at 3-Alarm Loft Fire

Fifteen firemen of the New York Fire Department were caught in a backdraft while fighting a blaze in a loft building while the thermometer registered two degrees below zero. Members of the first alarm response chopped down a door which prevented entrance to the second floor.

A backdraft hurled the men down the flight of stairs. A second and then a third alarm were sounded. The last one brought Chief J. J. McElligott. Dr. Harry M. Archer established emergency quarters and treated the less serious of those injured while those badly hurt were rushed to hospitals. One line crew was frozen to the stairway and had to be chopped loose. At the end of two hours, the fire was brought under control.

Chief McCarthy Honored by Corning

Three thousand persons during the course of the evening crowded their way to the city hall of Corning, N. Y., to pay tribute to the long service record of Chief John W. McCarthy. On December 1, he completed twenty-five years service as head of the Fire Department.

He entered the fire service in April, 1897. In 1902 he was one of three members elected to the Board of Trustees. Promotion to First Assistant Chief came in 1900. After serving for eight years at this post, Chief McCarthy passed a civil service examination and was appointed a regular call Assistant Chief. He became head of the department on December 1, 1908.

Chief John H. Espey, of Elmira, N. Y., who rounds out thirty years service as head of the department in May, called with a delegation of officers and members of the Elmira department. Chief Espey paid tribute to his friend, which was broadcast by radio, as were other parts of the program. Among the visiting Fire Department heads were Chief Bond, Hornell, and Chief O'Keefe, Addison.

Telegrams and gifts were received from various parts of the state. Chief McCarthy is active in the New York State Association of Fire Chiefs.

Bids were opened for the construction of a fire station at Fort Bliss, Tex. The building is estimated to cost $13,000.

At an election at Bellmore, L. I., N. Y., on December 29, a bond issue for the purpose of purchasing land and equipment for building of a Central Fire Station, amounting to $44,600, was carried by a majority of 40 votes. There were three propositions as follows: 1. Purchase of building site for Central Fire Station, 55 x 110 feet, $3,600; 2. $22,000 for Central Fire Station and equipment, and 3. $19,000 for additional equipment and apparatus for Fire Department and for the sinking of three fire wells.

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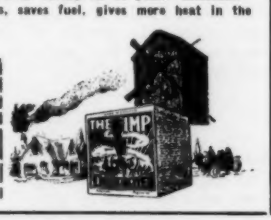

FALSE ALARMS

Drawing by "Art" Espey

The Old Chief Turns Over a New Leaf

CLOSE WORK

It was the annual ball of the volunteers. The members of the local unit were proud of the reputation that every one always had a good time at the annual dance. A member of the floor committee noticed a tall lady wearing a flashy necklace, sitting alone. He asked her for the honor of a dance. She was almost a head taller than her partner.

After the dance the fireman was asked how he got along with her.

He replied, "That's what you call keeping your nose close to the rhinestone."

The three R's play an important part in a man's life. At 25 it's romance, at 45 it's rent and at 65 it's rheumatism.

MOVE FOR MOVE

Some of the boys had planned a party at a nearby town where a firemen's convention was being held. One of the group informed his wife:

"I may stay in town late tonight. If I do, don't wait up for me."

"I won't," said the missus. "I'll come down and get you."

Historical records for the past year will sound doubtful several years from now when one speaks of 1933 as the year we closed the banks and schools and opened the saloons.

PAST HISTORY

The time for electing new members for the Board of Fire Commissioners was rapidly approaching. One resident who thought to throw his hat in the ring, sounded out the public feeling towards him. He confided to an ardent supporter:

"I'm afraid the people won't elect me because of my youth."

"Youth?" answered the other very much surprised. "But you are fifty years old and your youth is spent."

"That's just the trouble. They found out how I spent it."

FUNDAMENTALS

A cat may look at a queen, and an attractive young officer may, by the same reasoning, fall in love with a comely girl who lives in a beautiful home on the same street as the fire house. The father frowned at the impending alliance.

"Why, sir," asked the suitor, "do you object to me marrying your daughter?"

"For the simple reason that you can't support her in the style to which she has become accustomed."

To which he replied, "At least I can start her as well as you did—on bread and milk."

Then there was the polite cannibal king who remarked to the recently captured missionary, "We would like very much to have you for dinner tomorrow?"

PERFECTLY SAFE

He had been elected Chief at the annual meeting of the department. The Chaplain had helped him secure the necessary votes and as a mark of appreciation, the clergyman was invited to the home of the Chief-elect for dinner.

After the family were seated, the reverend bent his head over his plate in prayer. Everybody was quiet. Then the young son said in a shrill voice:

"It's all right, mister—the meat's quite fresh."

—Courtesy Chicago Herald and Examiner

"Something's gotta be done—those news reel fellows have beaten us to three fires this week."

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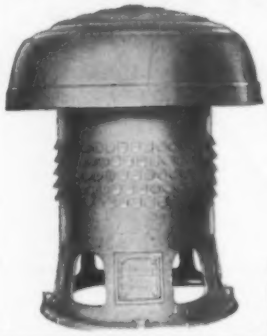

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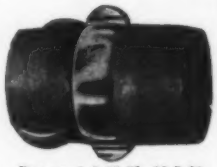

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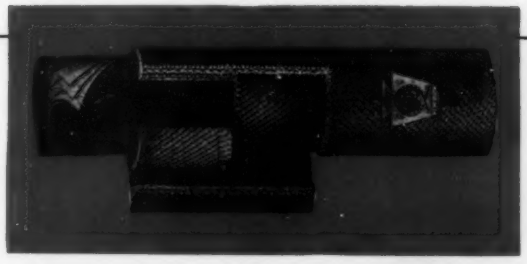

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